Rescaling in flood risk governance – new spatial and institutional arrangements and structures

Thomas Thaler

Middlesex University London

Flood Hazard Research Centre
School of Science & Technology

Eine der vielen Absurditäten, auf die eine nur beschränkte und summarische Arbeit wie die vorliegende verfallen könnte, wäre es, mit einer »Geschichte« zu beginnen, die man dann sozusagen als eine abgetrennte Welt für sich behandelt und nur aus dem Grund beschwört, um die »Genesis« der Probleme verstehen zu können.
Romano Alquati 1962/63.

Dedicate this PhD to:

Alan, Asia, Daniel, Ella, Jana, Mara, Sarah, Selma, Tobias and Valentina

Abstract

Flood governance and policy in Europe are changing: the role of the state and individual responsibility for risk management are now key contemporary issues in flood policy. The new policy agenda has been implemented to enhance the responsibilities of local authorities in flood risk management and reduce the controlling role of central national governments. The new strategies place the lead responsibility on *local* organisations to determine *local* strategies to manage *local* risks. This thesis examines the new role of these local authorities and organisations in flood risk management as well as how the nature of partnerships are established and operate, focusing especially on the main barriers and challenges. In principle, local authorities should be able to lead partnerships with local stakeholders to ensure effective local flood risk management. However, with current pressures on local authorities to reduce spending and a parallel reduction in the central state's resources, partnership has been seen as a possibility to both increase the value of budgets available.

The central aspects of this thesis are to investigate and to explore the influence of new scales on the interaction and performance of the different actors and their relationships; particularly with regard to power, processes and scaled networks.The research was carried out through a series of semi-structured interviews with both regional and local stakeholders in Austria and England. It demonstrates not only the importance of network connections between actors at the same scale, but refers also to the networks between actors and stakeholders at different scales, especially between local and national level. Local engagement strongly depends on social capacities, such as knowledge, motivation/self-interest, economics, networks, organisation and procedural capacity.

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List of abbreviations

Asfinag – Motorway financing stock corporation (Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft)

BWV – Federal Water Engineering Administration (Bundeswasserbauverwaltung)

CBA – Cost-Benefit Analysis

CEA – Cost-Effectiveness analysis

Defra – Department for Environment, Food and Rural Affairs

EA – Environment Agency

EU – European Union

FAG – Flood Action Group

FDGiA – Flood and coastal erosion risk management Grant in Aid

IDB – Internal Drainage Board

LLFA - Lead Local Flood Authority

MCA - Multi-criteria analysis

NFF –National Flood Forum

NIE – New Institutional Economics

NPM – New Public Management

NPPF – National Planning Policy Framework

ÖBB – Austrian Federal Railways (Österreichische Bundesbahnen)

OM – Outcome Measures

RFCC – Regional Flood and Coastal Committee

RFDC – Regional Flood Defence Committees

WFD – Water Framework Directive

WLV – Austrian Service for Torrent and Avalanche Control (Wildbach- und Lawinenverbauung in Österreich)

WWF – World Wildlife Fund

1. Introduction

1.1.Background and problem definition

Flooding is a central problem in our society. Several floods, like those that occurred in 2000, 2007, 2012 and 2014 in England or 2002, 2005 and 2013 in Austria (such as Danube Flood) caused high damages for the environment, economy and humanity (Görlach et al., 2005; Chatterton et al., 2010). This has focused the attention of policy makers as well as researchers on questions of vulnerability[1] reduction to natural hazards. Key challenges of how to approach the topic of flooding is that (1) not everyone is threatened by flood events, (2) there is a shift towards managing flooding towards acceptable risks rather than eliminating flooding, (3) there is an increased future flood risk, because of climate, demographic and land use change (4) there is a trend to build more and new houses in floodplain areas and (5) changes in consumption based on socio-economic circumstances, which provokes an increasing of the costs of flood damages (Johnson et al., 2007; Evans et al., 2004; Parker, 2007). This has led to an increasing discussion on changes beyond that of vulnerability and flood risk (Fuchs et al., 2013) such as climate change and dynamic forces of exposed societies (Keiler et al., 2010; Birkmann et al., 2013). The context of changing flood risks is driving a transformation in the role of the state in terms of responsibility sharing and individual responsibilities for risk management and precaution (Mees et al., 2014; Adger et al., 2013). Recent developments (in Europe) re-arrange a new role and responsibility for the state and to the individual households for flood risk management[2] (Defra, 2012; Johnson and Priest, 2008). The re-design of the

[1] The term vulnerability herein used includes 'the characteristics of a system that describes its potential to be harmed. It can be expressed in terms of all functional relationships between expected damage and system, characteristics (susceptibility, value of elements at risk), regarding the whole range of relevant flood hazards' (Mens et al., 2007: 73). In accordance with the definition of United Nations, I divided the factor vulnerability into four groups: (1) economic, (2) social, (3) physical and (4) environmental (UN/ISDR, 2004).

[2] Smith and Petley (2009) described risk management as a 'process through which risk is evaluated before strategies are introduced to manage and mitigate the threat' (ibid. 65). Flood risk management plans select final programmes of measures to reduce the flood impact (pre-flood reduction), but also to manage effectively and efficiently flood events as well as the recovery phase, i.e. psychological and economic assistance, support in recovery management, such as rebuilding, cleaning etc. Flood risk management includes three main components: (1) pre-flood reduction (i.e. structural and non-structural measures), (2) flood event reduction (i.e. emergency management) and (3) post-flood reduction (i.e. recovery management).

relationship in flood risk management refers to the aspect of governance. Important issues are the different relationships (horizontal, vertical, diagonal) between the different agents (Steurer et al., 2010). At the European level, the different countries show different types of relationships betwenn the different actors, stakeholders and citizien involved in flood risk management discussion, which will discuss below.

1.2.Partnership approaches in other European countries

In Germany, for example, the Wupperverband in North Rhine-Westphalia was established in 1930 with the key purpose of water management, e.g. water supply and water pollution. Today, the inter-local co-operation covers further tasks and objectives, mainly flood risk management, water quality (waste water treatment and sludge disposal), drinking water supply and ecological restoration of the river embankments. A key objective is the implementation of the EC Floods Directive and EC WFD, like Ill-Walgau study site (see section 4.2.4). The key tasks in flood risk management are the development and use of inter-local flood alleviation schemes (flood storages across the catchment). Key players have been the large industrial enterprises in the region, but they lost their influence over the last decades as a consequence of socio-economic changes in the region (Moellenkamp et al., 2008). The co-operation is organised in a two-way approach; a general assembly and a council with 15 members selected from different representative groups. The level of contribution is mainly based on the use of co-operation. The co-operation introduced different charges for citizien and businesses to flooding, hydropower, provision of drinking water, stormwater management, water course maintains or water pollution (Wupperverband, 2007). Stakeholder engagement and the influence from the citizens is very low meaning a ‘classical’ top-down flood risk management system. The democratic structures, legitimacy and accountability are based on the local council democratic processes, because the local authorities send their local politicians as representatives in the co-operation (Moellenkamp et al., 2008).

In the Netherlands, the water boards show similar structures and developments to the German and Austrian inter-local partnership approaches. The water boards play a central role in the Dutch water and flood risk management system. Compared to the Austrian and German examples, the water boards are regional authorities where the members are not public authorities (Moellenkamp et al., 2008; de Leeuw et al., 2012; Ward et al., 2013; Mostert, 2006). Today, the Dutch system includes 25 water boards reduced from 3,500 in 1850 or 2,500 in 1950, which are organised on river basin and regional approaches (Moellenkamp et al., 2008). The first water boards were established in the 1200/1300 AD (ibid.), especially with the first polder boards in 1400 (Mostert, 2006). The water boards have three main responsibilities: (1) water quality, (2) water quantity and (3) flood risk management with also a central role in emergency management planning (de Leeuw et al., 2012; Lamers et al., 2010). Warner et al. (2010) observed the main responsibility of water boards behind the dikes and not outside the dikes. The role of the provinces is to supervise the water boards (Mostert, 2006). Membership is legally obligated, but the representatives are selected by the citizens in the water board area by election. This encourages a higher engagement of the citizens compared to the German or Austrian examples. However, also the engagement of the citizens decreased over the last years (see for further information also Moellenkamp et al., 2008). The representatives were divided into four main groups: citizens, entrepreneurs, land owners and owners of buildings. The level of contribution is also based on these categories: inhabitant tax (citizens), property tax (house owners) and pollution levy (households and enterprises) (ibid.). Compared to the German and Austrian inter-local co-operation, the Dutch water boards show a higher democratic process and citizen engagement, because the members for the general assembly are elected by the citizens in the water board area. In most cases the water boards have no strong linkages with local authorities; an exemption is the City of Rotterdam with the Water Plan Rotterdam (Ward et al., 2013).

Beside the formalised approaches, I found also some European examples with highly informal agreements. Examples are the Weisseritz Regio in Germany or Tweed Forum in Scotland (Wirth et al., 2008; Cook et al., 2013). The Weisseritz Regio co-operation was established after the 2002 flood event; it was strongly enforced as well as organised by the Federal State of Saxony (hierarchical structure). The co-operation includes 15 members from local authorities, Federal State organisations and non-state actors, such as the Farmers association or representatives of land users. The co-operation has a one-page declaration with a general agreement of the aims and objectives (Wirth et al., 2008). The organisation structure is similar to the institutionalised inter-local co-operation in the Netherlands, Germany or Austria with a general assembly, a steering group, working groups and a coordinator (ibid.). The advantages of the informal approaches are the fast creation and rapid response and adaptation to new circumstances and frameworks. Nevertheless, the outcome is very limited compared to the other examples of inter-local co-operation. The key outputs have been the distribution of information and a new forest management concept for the catchments. The co-operation mainly gained from the strong financial contributions and political interests after the 2002 flood event.

1.3.Political geography in flood risk management discourse

The outcome of these changes and new social contracts between society and government was new scalar arrangements in the political decision-making practices. The scale concept plays a fundamental element in current flood risk management debates, especially relating to the question of risk- and responsibility-sharing between national and local authorities and non-state actors[3]. Swyngedouw (2004) described scale 'as something that is 'produced'; a process that is always deeply heterogeneous and contested' (ibid: 34). On this basis, scale is never a priori (Smith, 1990), it is based on social construction and evolution and interaction of territory

[3] In this thesis, non-state actors are assumed to be someone who is entirely private; not employed by any governmental organisation (Geeraerts, 1994).

and structure, which organise and rule social relationships (Cox, 1998; Gualini, 2006; Brenner, 2004; Swyngedouw, 1997; Bialasiewicz et al., 2013). Scale has been seen as both an absolute (fixed) term and as a relative (dynamic) process, which depends on the political discourse, conflicts and bargaining (Smith, 1990; Smith and Ward, 1987; Thiel, 2010). A key point is the focus on linkages (relationships, interconnections and interactions) between the different actors over spatial-temporal developments (Massey, 1992; Sayre, 2005; Cox and Mair, 1989), which strongly refers to the aspect of the distribution of power (Allen, 2009; Juntti et al., 2009; Evers and de Vries, 2013). Key points are the political processes and conflicts between the different actors (Cox, 1998; Smith, 1990; Sayre, 2005; Brenner, 2004; Swyngedouw, 2000). The re-scaling processes encourage new definitions and discussion of each actor in the policy discussion and social relation as well as their linkages in the definition and implementation of policy strategies (Reed and Bruyneel, 2010; Cox, 2013; Pugalis and Townsend, 2013). The outcome has been changes in the relationship between the different agents and the actual governance framework (Thiel and Egerton, 2011; Gualini, 2006; Thiel, 2010).

1.4.Research aims

The overall aim of this thesis is to examine the scalar re-arrangements in Austria and England and the consequences and impact on flood risk management. The project will examine how different institutional and governmental structures in the selected case studies approach flood risk management, with particular attention to the change of scales. Therefore, my assumption is that the politics of scale influences the involved actors[4] and stakeholders as well as their performance.

To address this aim, this research is guided by a number of objectives. The important aspect refers to the question of the selection and approval process of a programme of measures in

[4] An actor is defined as someone who is involved and acts in the policy system in terms of defining goals and objectives (primary actor) or providing sub-goals or sub-tasks to achieve the policy goals (supporting actor) (Leroy and Arts, 2006). On the other side, stakeholders are understood as persons interested and actively engaged (in terms of support) in the policy system (Green and Penning-Rowsell, 2010). This differs from citizens, which are those who are not actively involved or interested in the policy system.

the policy discussion. Finally, the participation dimension includes the question of the political space for the mobilisation and discussion process of the different actors in the decision-process. The rescaling process includes a change in the relationship as well as new working relations and interventions between the different actors, e.g. new forms of relationships and interactions (Smith, 1990; Perkmann, 2007; Swyngedouw, 2004; Pugalis and Townsend, 2013).

The research objectives of this thesis are:

To investigate and to explore the influence of new scales (inter-local co-operation or localism debate) on the interaction and performance of the different actors and their relationship; particularly with regard to power, processes and scaled networks.

Therefore, based on the research objective four research questions have been developed to organise the research process; these are:

Question 1: Which mechanism and action influence the change of the actual scalar arrangements?

Scales are never fixed, because they are a product of social processes under a political strategy and ideology. Rescaling processes included three main directions: upwards, such as towards the European level; downwards, such as new localism or regionalism; or sidewards, such as privatisation and outsourcing public tasks to private actors, stakeholders and citizens. Therefore, new scalar re-arrangements have a strong influence on the change of level of activity and self-realisation between the different key actors and stakeholders in the policy decision-making practices.

Question 2: How cross-scale dynamics have influenced national flood risk management strategy?

Scalar re-arrangement cause changes in the actual formal and informal codes and norms as well as changes in actual administration practices, which also includes that actors and

stakeholders can change their position in the decision-making practises (change of power relationships) to ensure their interests (scale jumping). Furthermore, scalar re-arrangements have an influence on the definition of the duties and responsibilities between the different political units as well as between state and non-state. This has a central influence in the governance structures. The horizontal level refers mainly to the out-scaling of duties and responsibilities, away from the public administration level towards private actors, stakeholders and citizens.

Question 3: What are the barriers and limitations of new scalar re-arrangements in terms of network governance, and what are their social and political functions and consequences?

Co-operations in flood risk management can be seen as an ideal instrument for the politics of flood risk management. Throughout, with current pressures on local authorities to reduce the spending and in parallel, a reduction in the central state's resources, inter-local co-operation has been seen as a possibility to both increase the 'value' of budgets available and to increase efficiency in using current public funds and resources. In general, a co-operation is not a 'business as usual' situation for the different members due to the high risk for each member (van Huijstee et al., 2007). A key question involves how the nature of the partnerships is established and how partnership is embedded in the political context, meaning the relationship between the different actors and stakeholders at different scales (Somerville, 2011; Glasbergen, 2011). Therefore, in this thesis I analyse the motivation and drivers in the creation of new relationships in flood risk management, focussing especially on their main barriers and challenges.

Question 4: What is the role of proximity in shaping the opportunities and barriers for partnership activities in flood risk management, and what are their social and political functions and consequences in flood risk management?

Partnership is seen as one form of interaction between state and non-state actors in policy decision-practices (McCay, 1996). The co-operation process seeks to engage a large number of different stakeholders in the policy discussion at same scale (van Huijstee et al., 2007). The key aim is in consensus building between the different actors, stakeholders and citizens with defined responsibilities, power, rights and functions (Berkes, 2010; Margerum, 2002; 2008; Borrini-Feyerdon, 1996). To analyse the integration of partnership activities, I use the concept of proximity. The engagement between different members in a partnership strongly depends on the distance (proximity) between the actors (Lundquist and Trippl, 2013). In analysing the proximity in flood risk management, this research focuses on following categories: spatial, institutional, social, technology and relational proximity. These five proximities are adopted to examine the partnership approach in flood risk management, such as inter-local co-operation in Austria and national-local co-operation in England. The five proximities are highly relevant for flood risk management, because they incorporate structural and non-structural measures such as spatial planning, emergency management, risk communication, but also the aspect of stakeholder engagement in the decision-making practices. These are used to examine and to analyse the current partnership approaches and relationships in flood risk management.

In this thesis, I analyse fairly new policy processes (designed and implemented in the past 10 years). Therefore, the focus is on the changes in the political processes and not the outcome. This is in the line with Sabatier (2007). Sabatier (2007) saw the evaluation of new policy process extremely complex, which included a wide range of different variables, such as time. Policy process needs to analyse with a time range of at least 20 to 40 years to fairly analyse the impact of new policies. Furhtermore, this thesis does not focus on the aspected of whether the selected flood risk management measures have changed as a consequence of scalar re-arrangements.

1.5.Structure of the thesis

The thesis is divided into nine chapters. Chapter 2 provides a critical reflection of the existing literature. A key objective is to provide a critical evaluation of the geographical assumptions and work on scalar arrangements and re-arrangements. The aim is to provide an overview of political geography and politico-economic framework to analyse the transformation in statehood and the impact and consequences of this towards local levels. Furthermore, Chapter 2 proceeds by discussing the impact of new territorial state spaces into networks and co-operation discussion as well as addresses the question of the concept of governance in flood risk management. It highlights the problems and difficulties in conceptualising the term governance in the literature, especially the focus on flood risk management. It demonstrates the different approaches in the understanding of the term governance (discussed in more detail also in chapter 5-7). The next two chapters focus on the research design. Chapter 3 examines a critical reflection of the methodology used. It provides an overview of the research design as well as addressing the limitations in the used methodology as well as practical barriers and difficulties. Furthermore, the chapter provides a brief overview and justification of the selected case studies. Chapter 4 outlines the selected case studies. This thesis selected Austria and England as a primary research focus based on various criteria (matching, qualitative assessment and cross-case test). This chapter primarily examines the policy decision-making process in Austria and England beginning with stakeholder and institutional mapping to provide an overview of the main involved actors and stakeholders in the actual flood risk management policy. The aim is to analyse the position, role and interests of each actor and stakeholder in the actual policy process and decision-making practices as well as to understand their changes.

Chapter 5 analyses the drivers and circumstances in the changes of scalar arrangements, which re-define the governance structures in flood risk management policy. Chapter 6 covers the politics of scale of the selected case studies with focus on state spatial frameworks, new

territorial creations, socio-spatial relationships and changes in the social interactions. I have observed that recent developments in the policy on flood risk management in the selected countries have changed. In Austria the new politics of scale foresees a catchment management approach in flood risk management. On the other hand, the English new politics of scale includes a stronger focus towards local solutions. This included a new arrangement of governance in each case study. Chapter 7 concentrates on the analysis of performance and interaction in the new governance (outcome and consequences of new politics of scale). The aim is to show the consequences and impacts of the scalar re-arrangements. It shows the types of relationships and networks in the selected case studies as well as the performance and the role of different actors in flood risk management. Finally, Chapter 8 provides a critical reflection of the theoretical assumption and empirical results in the thesis. It provides my key findings from the selected case studies. Furthermore, it examines some developments in further European countries to provide a general overview of scalar re-arrangements in Europe. The final section comprises some main policy implications and recommendations.

2. Politics of scale: scalar re-arrangement in flood risk management

In flood risk management in the past two decades, various scholars have observed a shift in flood risk management policy debates (Kubal et al., 2009; Johnson et al., 2007). Recent developments re-arrange a new role and responsibility to the state and to the individual households for flood risk management (Defra, 2012; Johnson and Priest, 2008). This re-arrangement of new roles and responsibilities towards private-public actors and citizens has been driven by various developments including: recent financial and economic crises (Defra, 2012; Stockhammer, 2012), implementation of new legal requirements (EC, 2000; 2007) and recent flood events, e.g. the summer floods in 2007, Danube floods in 2002, or Elbe floods in 2002 (Pitt, 2008; Defra, 2005; BMLFUW, 2010; BMU, 2005). These developments suggest that policy agendas should enhance responsibilities of different actors in flood risk management and reduce the controlling role of central governments. The change implies a new contract in the relationship between the different actors (Pearce and Ayres, 2012; Adger et al., 2013), e.g. in the Flood and Water Management Act (2010) the key issue is to encourage the responsibilities of local authorities. The consequences were various scalar re-arrangements in policy decision-making practices, from planning to maintenance. The new politics of scales encourage the implementation of new scales, which have a strong influence for governance, such as the shift from local flood risk management to catchment-wide management strategies.

The purpose of this chapter is to examine the theoretical discussion on scalar re-arrangements and provide the conceptual setting for the research. Correspondingly, this chapter reviews the political geography literature to gain a clearer understanding of scale and its relevance to governance. The scale concept forms an essential element in relating to the question of risk- and responsibility-sharing in flood risk management, such as the implementation of catchment-wide management plans, between national and 'lower' local authorities (such as

local, district or regional authorities) and non-state actors (see chapter 2 and 7). Politics of scale defined the governance arrangement and structure in flood risk management. Therefore, new scalar arrangements may condition the networks relationships and power settings.

2.1.Academic perspective on politics of scale

Swyngedouw (2004) understood scale as an ongoing socio-political process, a process that is always deeply heterogeneous and contested' (ibid: 34). Scale has been seen as a absolute (fixed) term and as a relative (dynamic) process, which depends on the political discourse, conflicts and bargaining (Smith, 1990; Smith and Ward, 1987; Thiel, 2010; Marston et al., 2005) as well as from the social reproduction and consumption (Marston, 2000). An important issue is the dynamic-evolution perspective of scalar arrangements, because of the ongoing changes in the social structures between public and private actors and stakeholders (Brenner, 1997). This can be understood as a product of social processes (Smith, 1990). In this line, Fainstein (1999) underlined the importance of analysing the social structures of each actor and stakeholder in the ongoing policy discussion with a focus on the relationship between human-environment interactions. Following these authors, the term scales is understood as a highly political discussion.

On the other hand, current developments in the academic research understood scales as a de-politicisation debate, especially in the introduction of the scale debate into New Institutional Economics (NIE) and a multi-level governance debate, such as spatial fits and misfits (Moss, 2012). For example, Gibson et al. (2000) defined scale as 'the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon' (ibid: 218). The authors divided the term into absolute and relative scales. Absolute scale is 'the distance, time, or quantity measured on an objectively calibrated measurement device' (ibid: 218). Conversely, relative scale is 'a transformation of an absolute scale to one that describes the functional relationship of one object or process to another (e.g. the relative distance between two

locations based on the time required by an organism to move between them)' (ibid: 218). Additionally, the theoretical discussion of the scale concept can be distinguished between temporal (management cycle) and spatial boundaries (administration, hydrology, ecosystem and economy) (Dore and Lebel, 2010; Cash et al., 2006). Nevertheless, the boundaries interact between each other, so the 'challenge arises out of the incorrect assumption that there is a single, correct, or best characterisation of the scale and level' (Cash et al., 2006: 4). Therefore, the New Institutional Economics School[5] excludes the socio-political developments and impacts in the constructions and arrangements of scale. The outcome is an exclusion of the question of power, democracy, social constructions as well as social justice and equity in their research discussion, which is a central point in this doctoral research. Therefore, the construction of scale depends on socio-historical developments and conflicts which are continuously changing; depending on the political system and alliances between the different actors, stakeholders and citizens (Jones, 1998).

2.1.1. The concept of scale

Since the 1970s-1980s, I observed within the literature a general consent in increasing the individual (outscaling), local (downscaling) or international (upscaling) responsibility (Smith, 1990; Smith and ; Ward, 1987; Lefebrve, 2007; Masula et al., 2008). This highlights also a change in the policy making processes towards broader hybrid decision-making practices (Mees et al., 2012). Scalar arrangements are currently under review (fluid), where those scalar re-arrangements are socially constructed and influenced by the social interaction at geographical spheres (Brown and Percell, 2005; Brenner, 2004). Moreover, this includes also fixed arrangements in terms of pre-defined social structures and power, especially the hegemonic position of elite groups in the policy decision-practices (Brown and Percell, 2005). In this line, scales include a dialectical interplay between fixed and fluid scalar structures, where power and hegemony is a central point in the ongoing policy-decision practice,

[5] This image of scale discussion as a 'hipster-styled' discussion (=exclusion of the politics).

especially the 'control over space' (Allen, 2009: 199). The outcome of the scalar re-arrangements has led to a new definition of responsibility and power between the actors, stakeholders and civic society, but also to new policy frames, relationships and networks as well as policy intervention (Pugalis and Townsend, 2013; Thiel and Egerton, 2011). The governance networks are particularly important for political collaborations and interaction across scales to ensure individual interests and needs (Paasi, 2004). This includes that the space has to be seen in a broader sense to include socio-spatial relationships (Jessop et al., 2008). A key question is to understand the spaces of engagement, spaces to act and the capacity to act (Perkmann, 2007) as well as changes in the social interactions (Wissen, 2009; Mees et al., 2012; 2014). Consequently, the change of scalar arrangements leads also to a review of the relationship and interplay between the state and the civil society (Swyngedouw, 2011; Amin, 2004; Pellizzoni, 2011; Neal, 2013; Coaffee, 2005). A key question is the space of engagement to ensure the stakeholder needs and interests (Cox, 2013; Perkmann, 2007).

The new politics of scale encouraged local authorities and institutions to deal with certain local risks. The aim is that local institutions take over responsibilities from the central government. A central ideology in the literature is that local decisions are often seen as a 'better' solution in terms of social justice[6], accountability[7], legitimacy[8] and transaction costs[9] in compare to

[6] Different concepts of social justice exist (Elster, 1992; Mill, 2010). At its most basic level, social justice concerns questions over fairness in the distribution of resources, capital and wealth across different members of society. The different concepts of social justice differ in their interpretations of fair resource distribution (Varian, 1975). For the discussion of social justice and flood protection, not only the actual distribution of flood protection measures is important (distributive justice) (Johnson et al., 2008), but also the way how this allocation is achieved. Social justice also considers the process how a certain distribution was reached (procedural justice) (Walker and Burningham, 2011). Procedural justice includes moral and ethical standards in the policy discussion (Leventhal, 1980), such as fair allocation – equality of opportunity (e.g. information), exclusion of self-interests in policy discussions by policy makers, evaluation and adaptation of policy implementation processes or possibility to be included in the policy discussion process (Green, 2011).

[7] Accountability has seen as a dynamic process, where 'decision-makers have to justify and explain their action' (Bäckerstrand, 2006: 295). In traditional understanding, 'accountability has been defined in its principal form as the mediated relationship between governors and governed, whereby the governors have to justify their actions to the governed as result of being granted delegated authority' (Joss, 2010: 409). The term accountability is distinguished into: (1) internal and (2) external accountability. The internal accountability refers to public administration, which has to justify their actions and decisions towards the society, e.g. electorate control mechanism. The external accountability refers to the justification of decision-makers above all to affected stakeholders of their decision affected by policy strategy. Key points of accountability are: (1) monitor policy discussion and actions and (2) sanction decision if they fail (Leventhal, 1980). This relates accountability to formal – delegation relationships

national decisions. However, this depends strongly on the localities. Localities are highly heterogeneous structures, references and developments (Clarke and Cochrane, 2013). This includes that some local authorities have advantages from a strong localism policy, whilst others not. The outcome has been that local authorities have introduced their own policies and strategies and not only have replied to the national targets and policies. Nevertheless, the new scale construction enforced new questions and problems: (1) who is responsible, e.g. individual, collective, private, public (identity[10]) (2) for which tasks and risks (event[11]), (3) when (time) and (4) how (prescriptions[12]), especially relevant in division between private and public discourse. The central Government defines the question of who, what, when and how.

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between authorities and their direct agents, e.g. governors and governed, employer and employees, national and local authorities (Blagescu et al., 2005). As a summary, accountability includes four principles (1) transparency, (2) participation, (3) evaluation, and (4) feedback (Whitty, 2008).

[8] Political discussion and decisions made based on negotiations and arrangements between the different stakeholder groups. The enforcement of non-state actors, especially as a response to the various crises, has increased the need for legitimacy in policy decision processes. In general, some scholars see legitimacy as a justification of certain actions and decisions (evaluation instrument). While scholars generalised the term legitimacy and tried to include a more holistic evaluation of policy decision and making process, the term became more unclear. Suchman (1995) described legitimacy as 'a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions' (ibid: 574). Mees et al. (2014) divided legitimacy into (1) input, (2) throughput and (3) output legitimacy. Input legitimacy is oriented towards the relationship and co-operation between public and private agents in the policy discussion, e.g. availability and access to information, transparency of discussion, and monitoring process (e.g. representation of various interests). Further, input legitimacy included the aspects of social equity and justice as well as ensures accountability. Instead output legitimacy focuses on efficiency and effectiveness of problem solving, e.g. clear definition of targets and objectives, response towards problems in the implementation process (e.g. acceptance of stakeholders). Output legitimacy is related more to the variable of economic efficiency. Throughput legitimacy refers to quality of participation, in particular, the potential influence of stakeholders in the policy decision-making practices as well as quality of deliberation, which focus on the quality of the discussion within the decision process (Suchman, 1995; Mees et al., 2014).

[9] Transaction costs occur, because there are no perfect market conditions under general equilibrium. Therefore, the transaction costs negotiate the terms of the exchange. The most relevant types of costs are: search and information costs, bargaining and decisions costs, control and enforcement costs as well as regulation of externalities (McCann et al. 2005). In public administration, transaction costs can be understood as costs for decision-making processes and implementations (Birner and Wittmer, 2004). In this way, McCann et al. (2005) defined transaction costs inclusive of administrative costs. This included costs of failures or 'wrong' decisions (sunk costs) in policy decision and implementation process for the public administration (Roggero and Fritsch, 2010). Birner and Wittmer (2004) distinguished transaction between those which are necessary for the policy decision process, e.g. research, collection of information, meetings, information exchange etc. and those which are necessary in the implementation process, e.g. monitoring. In respect to time and frequency in public administration, Birner and Wittmer (2004) distinguished between (1) operational decision, (2) day-to-day decisions and (3) strategic decision, e.g. co-ordination between different organisations and agents.

[10] The attribute identity focuses on the individual actor, especially their motivation, role and characterise.

[11] Schlenker et al. (1994) summarised under the term event all aspects of action and the response (consequences of the activity).

[12] Prescriptions refer especially to the aspect of rules (formal and also informal) for the individual and collective behaviour and interaction.

Pellizzoni (2004) argued the changes in the public administration 'entails the enhancement or a change in the relations of responsibility' (ibid: 542). However, the 'transition' from the bureaucratic state to a more market oriented and civil society state had also led to a strong shift in the responsibility debate. Under the traditional bureaucratic government the main responsibility resides with the central government. In the market and civil society state the public administration encourages a shared responsibility between private and public actors. Dicke and Meijerink (2008) defined the shift of responsibility between public – private as a process 'beyond the gradual changes that we have seen in the past. Many countries feel that their flood management is in need of review because of the many floods in the past decade and the foreseen impacts of climate change' (ibid: 495). The involvement of 'new' actors had a strong influence in the policy discussion and decision with the consequences of a more decentralised flood risk management system.

Consequently, we can see this as a step back in history. Although, key driver in the shift of public – private spheres is the increasing market activities, therefore, the outcome has been an increased individual responsibility in dealing with risks and environmental problems. A central question refers to the definition of public and private.

2.1.2. The political economy of scale

The political economy of scale includes different forms of scales and their impact and consequences for regulation practices and social conflicts (Swyngedouw, 2000). Additionally, Wissen (2009) argues that the rescaling concept is an important framework to understand the process of the new localism in the risk- and responsibility sharing debate. He summarised, that 'the social production of the scale concept tends to sidestep the structuring effects of scalar configurations as well as the social struggles through which these effects may be challenged' (ibid: 886). A further point in the scale debate is the role of public administration in the process of rescaling; there is not less public administration with rescaling tasks upwards, downwards or outwards; only a change in their purposes and objectives. For instance, 'it is largely accepted

that the national state does not simply disappear when 'new state spaces' are produced' (ibid: 886). Other aspects are like places, territories, networks and physical – ecology restrictions (ibid.).

A central tenet is the introduction of socio-spatial relationships in to the analytic research for a more holistic understanding of scale concepts and linkages to policy discussions and their outcomes (Clarno, 2013). Today, based on the work of Neil Brenner, Erik Swyngedouw and others, scholars include a broader view of the scale concept (Brenner, 2004; Swyngedouw, 1997; Jessop et al., 2008; Gualini, 2006). The authors describe the scale concepts as the interaction between human, environment and political discussion in a time and spatial view. To this extent, scholars define the rescaling process as 'the spatial, temporal, quantitative, or analytical dimensions used to measure, or rank, and study any phenomenon and levels as the units of analysis that are located at different positions on a scale' (Dore and Lebel, 2010: 62). Jones (1998) observed the scale arrangements and production based on geographical and cultural variables. These include also 'a contingent outcome of structural forces and practices of human agents' (Cox, 2009: 885), e.g. social justice and equity, power and stakeholder engagement. For example, Jessop et al. (2008) distinguish socio-spatial relationship in four dimensions: (1) territory, (2) place, (3) scale and (4) network. These analyses include historical, political and social development (see chapter 3). In particular, regulatory codes, norms, and institutions are spatially shifted from one scale to another (Glavovic et al., 2010). Consequently, the rescaling process enforces a change of the actual structure and characteristics of governance, which allows more or less actors and stakeholders to get engaged in the decision making (see section 2.2). A key point in this conceptualisation is the focus on linkages (relationships, interconnections and interactions) between the different agents over spatial-temporal developments (Massey, 1992; Sayre, 2005; Cox and Mair, 1989).

Central aspects in scale discussions are the hierarchical nesting of responsibility and power organised and shared between different scales (Brenner, 2004). In line with Howitt (1993), the

hierarchical concept (national-regional-local relationship) is a key attribute of the concept of scales, but the concept of scale 'should not be seen as a simple hierarchical concept' (ibid: 36). Nevertheless, Wissen (2009) mentioned that 'scales can only be understood in their relationship to other scales' (ibid: 888). On this basis, the concept of scale is based on social construction and evolution and interaction of territory and structure, which organise and rule social relationships (Cox, 1998; Gualini, 2006; Brenner, 2001; 2004; Swyngedouw, 1997; Howitt, 1993). Thus Howitt (2003) assumed three key elements, which summarised the term scale:

- size (based on the physical units, e.g. change in political boundaries),
- level (hierarchical relationship) and
- relation and interactions which are socially and politically constructed.

The interactions between scale units are intended to go in different directions (simultaneously up-, side- and downwards), rather than only one-way interactions (top-down). National policies encourage local authorities to take over certain tasks and responsibilities (downwards). Simultaneously, there is an upwards trend towards international organisations, e.g. EU wide policies and regulations. Simultaneously, the interaction between scales is also defined and organised by the actors. In the literature, various scholars see scale jumping as a central issue in the scale discussion (Smith, 1992; Moore, 2008). Jumping between scales is defined as the 'breakout' of actors in their actual scale position. For example, local actors network at national or international level or vice versa to ensure their interests and objectives. This describes the dynamic processes and changes in the social structure (Moore, 2008). In general, jumping scale enforces the change in the boundaries (Smith, 1992). Jumping scale is generally a synonym of the 'ability of social groups and organisations to move from lower to higher levels' (MacKinnon, 2011: 24), mainly to ensure their interests and objectives (Collinge, 1999). The outcome of scale jumping is the change in regulatory approaches, power structure and processes between the actors (Swyngedouw, 1997). A central problem refers to the question of power as an

outcome of scalar re-arrangements. Smith (1990) added the distinction between spatial (or physical) and social concentration and centralisation of power. Power is a crucial element in the interaction of individuals or groups (Foucault, 1982). It is a key attribute in the social relationship and structure (e.g. policy relationship) between different entities. Rothschild (2002) listed power in the policy discussion mainly linked to aspects of lack of transparency, especially asymmetric distribution of information between policy makers and stakeholders, as well as between different stakeholder groups. Power is seen as the possibility to modify the behaviour of actors, stakeholders and citizens in decision-making practices; such as decision or non-decision making. Further, this thesis understands power as well as the domination of power, to influence also against the individual interests, such as moral concepts, objectives or individual attitudes (Lukes, 2005). Therefore, power is embedded in the socio-cultural context, such as the individual habitous. Following Sayer (2004), power has to be seen in the social structures of the actors and not only in the actors themselves, especially the context of using power. Consequently, this thesis views key elements of power in the policy decision making process at different scales as: who decides in the policy processes, how power is used, who are excluded from the process and who is responsible in national, sub-national, or local level for decision making and implementation.

2.1.3. Changes in scale constructions: consequences and outcome

Rescaling debates encourage new definitions or discussions of each agent in the policy discussion as well as their linkages in the definition and implementation of policy strategies (Edwards et al., 2001). The outcome has been changes in the relationship between the different agents (Thiel, 2009; Gualini, 2006; Thiel and Egerton, 2011). Overall, the rescaling process promoted a change in the governance structure (the interaction between the different actors, in terms of planning and managing). It also influenced and enforced new boundaries of interaction, in terms of planning and managing (Metzger and Schmitt, 2012). Allmendinger and Haughton (2009) introduced the terms ‘soft spaces’ in line with ‘fuzzy boundaries’ as a key

outcome of the rescaling process (see more detail information in section 6.5). ‘Soft spaces’ and ‘fuzzy boundaries’ are informal strategies, such as the introduction of catchment-wide management plans without ‘hard-formal’ contracts. The motivations are based on rescaling processes (transfer of power and responsibility to new authority structures) or the involvement of new actors or stakeholders in the decision-making process to overcome the official-formal procedure in the decision-making process, which cannot respond adequately to the existing institutional settings. The consequence is the creation of new ‘sub-regions’ outside the ‘hard’ political boundaries (Haughton et al., 2013; Allmendinger and Haughton, 2010). The change in the scale arrangements and possibility to move between the scales is often based on a political strategy, especially by actors in an unfavourable position at one scale arrangement. Their objective is to overcome this position in the policy discussion (Brown and Purcell, 2005; Smith, 1992). A key objective is to understand the mobilisation of the local actors and their influence on changing the social structures, especially the shift in the power structure (Cox, 1998; van Schendel, 2002; Smith, 2001a).

This thesis argues that politics of scale effectually defines the engagement of actors and stakeholders across scales in the decision-making processes (see chapter 6). In past years, in several European Member States there has been a significant rescaling processes ongoing on certain duties and responsibilities away from national level to lower or higher political units (European, regional and local level). This has had a central influence to the definition of who is involved in the decision-making process. The horizontal level refers mainly to the out-scaling of duties and responsibilities, away from the public administration level towards private actors, stakeholders and citizens (profit or charity organisations). The co-operation between state and non-state actors and stakeholders plays a crucial role in the governance discussion.

2.2.Theoretical perspective on governance

In the last 30 years, the term governance has become very popular, but at the same time very contested between schools of academic thought. The term itself is not new (Jordan et al., 2005; Jessop, 1998) and there is a general consensus amongst scholars that governance refers to non-hierarchical, flexible structures, that co-ordinate state and non-state actors (Jordan et al., 2005; Watson et al., 2009; Stoker 1998; Moss and Newig, 2010). The term derives from the Latin word *gubernatia*, which means steering, direction, control, management (Jessop, 1998; Le Gales, 1998). 'It originally referred mainly to the action or manner of governing, guiding, or steering conduct and overlapped with 'government'' (Jessop, 1998: 30). In the past years, the term governance was transformed into a broader definition and understanding with the result that the term itself has become increasingly unclear (Davies, 2002). The consequences were that the term lacks a clear critical definition in the literature (Jordan et al., 2005). Today, governance is a very fashionable term, which tries to understand transformations in public administration and the 'new' role of the state. However, there remains the question of whether the transformation has already happened or not; and if governance can be used as a 'general' theory to understand the past and predict the future (Frederickson, 2004).

An important aspect is that governance is not the same as government (Rhodes, 1996; Stoker, 1998; Jordan, 2008) or like governing (Jordan, 2008). Differences between the terms are widely discussed by different scholars. Stoker (1998) underlined that in the Anglo-American language 'government' refers mainly to the aspects of public state as an institution (as an organisation and a structure). In fact, government refers to the monopoly of power to define, implement and enforce rules to achieve defined targets and objectives. Weber (1991) noted government as the organisation which has the 'monopoly of the legitimate use of physical force within a given territory' (ibid: 78). In the classical understanding, a government has the power to define overall goals and assist different actors to achieve these targets (Jessop, 2004).

Treib et al. (2007) added that the 'government' concept is characterised by elected representatives, who define policy objectives and which are implemented by bureaucrats. In particular, scholars often make a clear reference to a strong bureaucracy state (Stoker, 2006; 2011). In sum, the main characteristics of the term 'government' are:

- strong hierarchical organisation structure (top-down decisions, communication, delegation, control, support),
- 'continuity' in career development (payments and position depending on age and working years instead of performance),
- in-personality (equality for everyone), especially to reduce the possibility to favour any agents,
- privileged expertise – 'trained to perform their functions and positioned to control access to privileged knowledge' (Watson et al., 2009: 449) and
- strong parliamentary and national sovereignty.

The main criticism of government in the literature refers to issues such as inflexibility, strong hierarchical structures, top-down decisions and discourage of individual responsibility in negative terms (Watson et al., 2009; Weber et al., 2011; Treib et al., 2007; Bache and Flinders, 2004).

On the other hand, governance focuses on 'participation of public and private actors, as well as non-hierarchical forms of decision-making' (Kohler-Koch and Rittberger, 2006: 28), in which, actors and stakeholders from outside the public administration play a crucial role for the development and use of new policy instruments (design and implementation) (Jordan et al., 2005; Lemos and Agrawal, 2006; Weber et al., 2011). Key objectives of governance include organising/co-ordinating the different interests, choices and conflicts between the different actors (Green, 2010; Fatti and Patel, 2013). Thinking this way, Janssen (2008) described governance 'as a form of co-ordination' (ibid: 349). Furthermore, Watson et al. (2009) regards

governance as an ideal case of self-organised policy networks, without or with the limited influence of central governments; as well as a key focus on negotiation between state and non-state actors at an equal level within market-based control instruments. In fact, governance defines new roles between the different state and non-state actors (Doak et al., 2004). Leon (2010) underlined that the shift from government to governance is directly correlated with the change of the question "who is responsible for what". With the introduction of a neo-liberalism paradigm in the policy discussion, a central government is encouraged to shift its own duties and responsibilities to non-state actors. This results in an increased share of responsibility between public and private actors, stakeholders and citizens. The redistribution of the tasks – in terms of politics of scale – include three directions:

- upwards to international or transnational organisations,
- downwards to regional or local authorities and
- outwards to non-state actors or quasi non-governmental organisations (*quangos*) (Reed and Bruyneel, 2010; Gibbs and Jonas, 2001).

In this line, the term governance focussed on the introduction of new economic policy instruments (Jordan et al., 2005), such as the use of market-based policy instruments like price, trading schemes, liability instruments etc. (Jordan, 2008). Since 1980s, several public administration reforms are linked to the 'roll-back'[13] and 'roll-out'[14] doctrine (Peck and Tickell, 2002; 2012). Rhodes (1996) summarised under the term governance in particular the discussion from the New Institutional Economics (NIE) with the '3 Es': economy, efficiency, and effectiveness. The focus is more on private methods like management, performance efficiency, using benchmarks and evaluation methods, reducing costs, introducing competition into public administration, with a strong focus on the performance of the output (Bevir et al., 2003). The

[13] 'Roll-back': deregulation process in the 1980s-1990s under Margaret Thatcher and Ronald Reagan (Peck and Tickell, 2002).

[14] 'Roll-out': adaptation of institution and organisation to neo-liberalism policy in the 1990s under Tony Blair, Bill Clinton or Gerhard Schroeder (Peck and Tickell, 2002).

motivation is to introduce private market instruments into public administration to reduce the costs and improve efficiency. One reason is the lack of accountability-argument in the public administration. Scharpf (1994) noted in his paper that the classical hierarchical model of classical government (see above) understanding does not provide 'all the answer for' to the new socio-economic framework, such as globalisation or new technological and communicative developments. The author mentioned that 'the advantages of hierarchical coordination are lost in a world that is characterised by increasingly dense, extended and rapidly changing patterns of reciprocal interdependence, and by increasingly frequent, but ephemeral, interactions across all types of pre-established boundaries, intra- and interorganisational, intra- and intersectoral, intra- and international' (ibid: 37). A key ideology is that the public administrations in a decentralised approach are appropriate as they will be more up todate and respond better and faster to the inherent complexity in the world. For example, various policy departments collaborate with other departments from relevant sectors (at same or different scale position).

Further, a key discussion in the political economy of scale is the debate about private and public (Brenner, 2004; Swyngedouw, 1997; Cox, 2013). The term 'public' is defined as an open field for everyone (low excludability and rivalry). In contrast, private is understood as a closed or exclusive area (Habermas, 1989). Private refers mainly to the aspect of private autonomy. Private autonomy (*Privatautonomie*) is the key element in liberal economic understanding or modern economic law. The term is based on the liberal principles, which activities and decisions are based on the freewill and action of the individual citizens. The restrictions are based on the general interests. For Habermas (1989) the public authorities 'corresponded more or less overtly to the compromise between competing private interests' (ibid: 132), especially for needs which cannot be satisfied by the market. This intends that 'the public sphere, which now had to deal with these demands, became an arena of competing interests fought out in the coarser forms of violent conflict' (ibid: 132). Main aim of the public sphere is

a balance between the different interests and conflicts of different actors, with the result that the conflicts moved from private to public level. However, the latest developments were the enforcement of private sector to take over tasks, duties and responsibility from the public sector.

The key aim of governance strategies and structures is to define certain policy goals and measures. The current focus is on the changing role of the state, away from central planning and regulating organization to a more a decentralised self-organised organism, which is quite flexible to adapt rapidly new developments and circumstances. The key role of governance processes is to ensure and enable different actors in (horizontal, vertical, diagonal) co-operation process to avoid social exclusion. Important issues are the different relationships between the different agents (Steurer et al., 2010). However, most scholars use governance as the response of government and civil society to new circumstances (response to the change in the society). Bache and Flinders (2004) underlined that 'governance is not simply a new phrase for describing what governments do' (ibid: 96).

This thesis understands governance as undertaken by a group of different people such as actors, stakeholders or citizens, with different background, interests, purposes, and objectives, interacting in the policy decision-practices are therefore simultaneously both outcomes of, and productive to, social relationships. The social relationships between different actors, stakeholders and citizens have to be seen in a very flexible manner. For example, related to flood risk management, social relationship (co-operation) between different actors, stakeholders and citizens do change over time (co-operation between national/regional/local bodies with planners, mediator, farmers, businesses, and private households). An important question is related to power (who posseses it, how and who uses it) (Green and Penning-Rowsell, 2010). In this line, Le Gales (1998) defined the term governance as 'the capacity to integrate and give form to local interests, organisations and social groups and, on the other hand, the capacity to represent them outside, to develop more or less unified strategies

towards the market, the state, other cities and other levels of government' (ibid: 90). Therefore, the broad range of different actors and stakeholders involved in the policy process is central to the definition of governance. Within this concept of governance includes the plurality of the society (Virno, 2004; Sorensen, 2006). 'For Spinoza, the *multitudo* indicates a *plurality which persists as such in the public scene*, in collective action, in the handling of communal affairs, without converging into a One, without evaporating within a centripetal form of motion. Multitude is the form of social and political existence for the many, seen as being many: a permanent form, not an episodic or interstitial form' (Virno, 2004: 21). The group (or multitude) is always in the changing process of (also in spatio-temporal aspects and dimension): co-operation between the members depends on specific objectives; new objectives implicitly demand new constellation with different members (membership is very flexible). However, the co-operation between the different actors and stakeholders are not continuous; they are changing over the time based on policy objective and individual interests.

2.3.Flood risk governance

To this point, this chapter has reviewed the concept of governance more broadly. The discussion now turns to how governance has evolved concerning flood risk management. As a starting point a central problem in past governance discussions is the missing link to geographical scales (section 2.1), especially with refer to flood risk governance. To overcome this, Fürst (2003) introduced the term governance into the geographical discussion. For him, governance includes two aspects: (1) functional aspects (a focus on problem or themes instead of territorial or natural boundaries) commonly investigated as part of governance and (2) territorial aspects. This latter territorial aspect focuses on the units in a geographical scale (territorial or natural boundaries). A key point here is the spatial orientation of involved actors and stakeholders in policy decision-making practices.

Following the definition of governance from section 2.2, flood risk governance is understood as different actors and stakeholders from differing societal and political backgrounds with diverse purposes and objectives finding a way to work together in a defined territorial framework, such as a catchment where the actors develop together a catchment-wide management plan. This means that the actors are 'acting' and interacting without geographical content, for example see discussion about proximity below (see section 2.4.2). Private actors (with different interests and affected differently (directly or indirectly) by an event) thereby have a more important role in the policy process, e.g. stakeholder engagement, outsourcing, volunteer work, individual responsibility or other forms (Kettl, 2000; Treib et al., 2007; Wiek and Larson, 2012). Sendzimir et al. (2010) suggested flood risk governance to frame as: (1) involvement of multiple actors in the policy discussion, especially outside of public administration (bottom-up), (2) change language towards integrated flood risk management, and (3) social learning, scholars found a strong link between social learning and adaptive governance (Huntjens et al., 2010; 2012). Such developments can be found in various policy strategy papers or introductions of new law standards (Defra, 2010b; BMU, 2005). Scholars observed, flood risk governance often as a network and a co-operation between the different agents, also with different policy planning background, e.g. agricultural policy, spatial and land use management, emergency management (Adger et al., 2013; Razafindrabe et al., 2014; Coulthard and Frostick, 2010; Ingold et al., 2010) or in terms of risk-sharing to decrease vulnerability in specific defined areas (upstream-downstream), e.g. flood storage, removal or reduce flood defence scheme alongside agricultural areas (Erdlenbruch et al., 2009). The relationship between the different public and private actors in flood risk management policies becomes centralised by this debate. Different scholars summarise the importance of a strong co-operative approach between the different actors in the policy discussion (Fatti and Patel, 2013; Razafindrabe et al., 2014), but often describe a lack of co-operation and harmonisation between the different actors and policy documents which can increase the frustration

between the different actors. From examples in the literature, the greatest hindrances and challenges in network governance can be found in the role of regulations, unclear responsibility, informal-formal institutions, capacity and resources between the different actors in dealing with flood risk management (Razafindrabe et al., 2014; Hung et al., 2010).

This work integrates the term governance into flood risk management. Flood risk governance is strongly based on the discussion of flood risk management. The interviews showed that the term flood risk governance has a broader understanding as the focus towards the request of an existing infrastructure (structural or non-structural flood risk management measures). Flood risk governance has started already with the planning and assessment discussion as identified in Austrian and England. Differently to Porse (2013) and Coulthard and Frostick (2010); I understood flood risk governance mainly as the result of existing flood alleviation schemes.

Flood risk governance distinguishes between the terms risk, i.e. flood risk assessment (hazard identification, vulnerability assessment and risk estimation), and the term governance, which includes the process of building and acting of a group of different agents (see text above). The term itself incorporates descriptive (conceptual) understandings as well as a normative framework to understand uncertainty, complexity and ambiguity of risks. Consequently, the thesis understands flood risk governance concept as based on people, risk infrastructure and scalar arrangements (see figure 2.1):

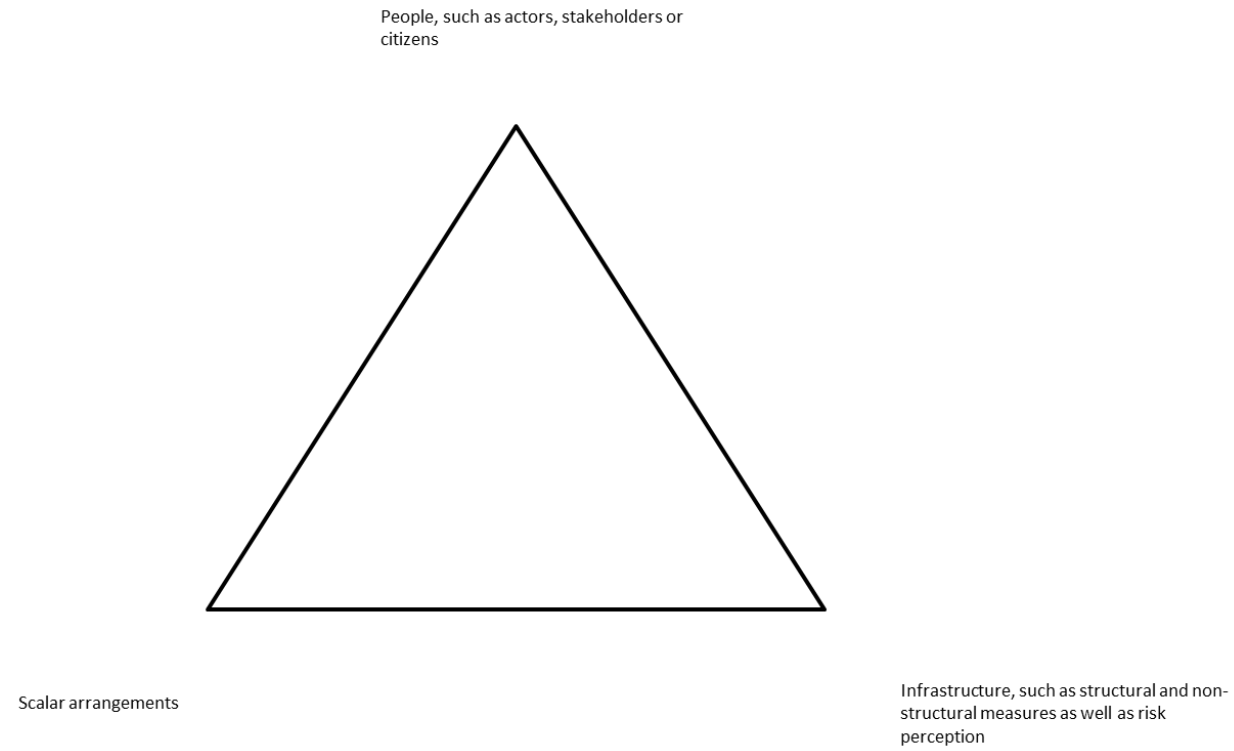

Figure 2.1: Triangulation of flood risk governance

Source: own development

First, flood risk governance has a strong dependence on the given infrastructure (Coulthard and Frostick, 2010). For example, Porse (2013) viewed in his example, that 'cities without major stormwater infrastructure typically also lack effective stormwater governance structures, both within and outside of municipal government' (ibid: 34). Furthermore, Porse (2013) identified flood risk governance in the context of flood defence infrastructure (structural as well as non-structural). He described a direct relationship between the flood defence infrastructure and the governance structures and processes. His argument is a lack of infrastructure causes a lack of governance structures. In general, both the terms risk and governance have two different approaches and meanings. However, the different sources of flooding, e.g. river flooding, pluvial flooding, flash flooding, groundwater flooding etc., does not create and define different governance approaches. In England, for example, the implementation of the Water Industry Act (1989) enforced a change in the flood risk governance structure. The Water Industry Act introduced private water industries to take over

the responsibility of urban drainage system (see also Coulthard and Frostick, 2010) Second, flood risk governance transfers the flood risk management into politico-economic discussion. Consequently, the term include 'the complex web of actors, rules, conventions, processes and mechanisms concerned with how relevant risk information is collected, analysed and communicated' (Renn, 2008: 9). According to van Asselt and Renn (2011), flood risk governance should be understood as 'more than just a descriptive shorthand for a complex, interaction network in which collective binding decisions are taken around a particular set of societal issues' (ibid: 432). The authors argued that the term incorporates descriptive (conceptual) understandings as well as a normative framework to understand uncertainty, complexity and ambiguity of risks. Flood risk governance 'can be interpreted as a bridge, combining the idea of 'sound' science with that of democratic participation' (De Marchi, 2003: 171). Nevertheless, De Marchi (2003) pointed out that the combination of the two different concepts 'are apparently separate, but belong instead to spheres of investigation and practical interest that are strictly intertwined and partially overlapping' (ibid: 171). The key aspect of the terms are the analysis of flood risks, policy structure and process (descriptive logic) and core elements of mode of governance (accountability, transparency, legitimacy, efficiency and social equity). Therefore, flood risk governance 'can be used as a checklist of how decisions are made (descriptive use), and at the same time functions as a guideline of how to organise the decision process when complex decision have to be made (normative model)' (van Asselt and Renn, 2011: 436).

2.4.Relationship between the different actors and stakeholders

The outcomes of the creation of new scalar arrangements (and the possibilities of jumping between scales) are new networks (coalition) between different actors, stakeholders and citizens. Scholars distinguished between three main forms of networks: bottom-up, hierarchical or top-down as two extreme forms and responsible autonomy as the middle way

(Kooiman, 2003; Martin, 2011; Haupter et al., 2005; see also section 6.4). Governance-networks is 'a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets' (Ansell and Gash, 2008: 544). Influentially, this thesis describes the network and co-operation as a common working process, where the different actors and stakeholders provide a problem definition as well as the policy solutions (Fenwick et al., 2012; Prager, 2010; Somerville, 2011). The term partnership is used to describe the relationship between different actors, e.g. state and non-state actors or between state actors at the same scale like inter-local co-operation approach (Teamey, 2010; Berkes, 2010; Brinkerhoff, 2002; Harrison, 2002).

Historically, since the 1970s the term co-operation and network has become central in the development aid arena, later strongly adopted in the neo-liberalism economic policy discussion, e.g. Private-Public-Partnership. Today, we can find a wide range of partnership approaches considered in various policy discussions (Maxwell and Riddell, 1998; Fowler, 1998; Abrahamsen, 2004; Pitt, 2008).

2.4.1. State-of the Art

In the literature, the term partnership includes two main directions (Glasbergen, 2011). The first direction is a focus on the internal structures and processes (internal factors). This includes mainly the question of the internal decision-making process. A second direction is the focus on the external structures and processes (external factors), e.g. partnership approach between two or more actors at different scales. The term also can be said to be the change in the relationship between state and non-state actors (Abrahamsen, 2004). Important other issues include the exchange of information and knowledge between the different stakeholders as well as ensuring a 'fair' relationship between them (Fowler, 1998). In summary, 'partnership was intended to be an equality in ways of working and mutuality in respect for identity,

position and role' (Fowler, 1998: 141). In the literature, scholars distinguished the term partnership in general between three different areas (table 2.1).

First, the normative stream is primarily focused on the non-state actors critical to the 'classical' policy discussion and general public administration practices. The aim is to encourage a large number of actors and stakeholders in the process to 'improve' policy discussion and implement 'successfully' the policy goals and targets. The idea behind this is to increase the accountability and the acceptance of new policy directions. The policy discussion and decision process (governance process) is enforcing the engagement of local scales in the decision-making practices (Berkes, 2010).

Second, the reactive stream argued that 'partnerships are important not so much in themselves but in order to achieve development objectives' (Teamey, 2010: 7). The main focus here appears to be primarily in the public relationship of central government, e.g. publishing reports inclusive project documentation, mission statements, annual/mid-term reports etc. (Brinkerhoff, 2002; Teamey, 2010). The aim is to increase the transparency in the relationship between state and non-state actors.

The third and final stream (instrumental) focuses on the implementation process. The implementation process can be understood as the capacity building (or function) of partnership (Berkes, 2010). Here, the term partnership referred to the achievement of the policy aims and objectives (Brinkerhoff, 2002; Teamey, 2010).

Table 2.1: Streams in the partnership discussion

Stream	Description	Aim
Normative stream	Primarily critique of policy discussion in the past (top-down approach)	Stakeholder engagement (main principles participation and empowerment) based on knowledge generations, for instead learning from communities about their risk; aim to increase social equity and justice and to ensure accountability and legitimacy.
Reactive stream	Response to the normative stream; justify neo-liberal policy instrument.	To ensure and improve public relationship between private and public sector, e.g. improve access and availability of information (improve transparency).
Instrumental stream	Main focus on the implementation process of the policy guidelines (applied function of partnership).	Achieve the targets and objectives (main principles efficiency and effectiveness).

Source: adapted from Berkes (2010), Brinkerhoff (2002), Teamey (2010)

On one hand, Abrahamsen (2004) characterised the partnership approach very positively, to ensure legitimacy and accountability as well as social justice and equity and the effective implementation of resources. On the other hand, he viewed partnership very critically. The main critique refers to the implementation and use of partnership in policy with the missing transfer of power between the different actors. In a similar way, Fowler (1998) observed partnership often as rhetoric outcome, because the main focus of partnership approach is only on the implementation performance of policy guidelines instead of solidarity and to integrated local knowledge to the policy definition, such as learning effects from previous natural hazards events. The key point is the intended outcome from the partnership approach. Added value can be understood also as additional benefit for involved actors. The definition of value-added indicators is quite difficult, because each partnership project is unique and due to the use of different experimental techniques as well as each project having different goals, partners, challenges etc. However, the question involves how partnership is embedded in the political context, meaning the relationship between the different actors at different scales (Somerville, 2011). An important aspect is the relationship between the different actors, stakeholders and citizens in decision-making practices (see also chapter 7).

The key aim of networks is to ensure long-term goals instead of a short-term benefit maximisation the benefits for all the members of the co-operation instead of individual members (table 2.2) (Rössl, 2005a).

Table 2.2: Types of relationships in relation to commitment and time horizon in flood risk management

	Time framework	**Commitment**	**Short description**	**Examples in inter-local flood risk management**
Competition	Short	Low	Key objective is to gain relative advantages instead of long-term relationship	Local protection schemes without catchment wide management actions
Egoistic	Medium	Modest	Key objective is to gain the absolute advantages, under consideration of the relative advantages	Catchment-wide management system as long as costs and preferences are higher than local protection measures; highly different between 'rich' and 'poor' communities
Co-operation	Long	Strong	Key objective is to gain the absolute advantages with the aim of coproduction between the actors and stakeholders	Inter-local flood risk management with the aim to incur externalities

Source: adapted from Rössl (2005a): 84

Throughout, co-operation should be seen as 'strategic alliances' between two or more agents. How the relationship is designed depends on the arrangement between the agents (formal, informal or both) (Rössl, 2005b; Wirth et al., 2008). The arrangement includes the question of sharing responsibility and power between different actors (Plummer, 2009; McCay, 1996). Moreover, co-operation process is 'not just about managing resources but is also fundamentally about managing relationships' (Graham and Ernstson, 2012: 3). In summary, a co-operation approach refers to the aspect of sharing power and responsibility between the different actors based on formal rules and structures (Sandström, 2009).

2.4.2. Engagement and interaction in between the new scalar arrangements

The engagement between different members in a partnership strongly depends on the distance (proximity) between the actors (Lundquist and Trippl, 2013). The concept of proximity refers 'to the degree of closeness of actors' (Huber, 2012: 1171) and stakeholders. This is well known in the regional economy literature (Zeller, 2004; Boschma, 2005; Moodysson and Jonsson, 2007; Lundquist and Trippl, 2013). A partnership approach is mainly is based on interaction between the different actors and stakeholders. The interaction is strongly influenced and defined by the institutional framework and the relationships of exchange between the different actors and stakeholders under competitive or co-operative environment (Torre and Gilly, 2000). In particular, flood risk management bases on a mix of technology and funding strategies, knowledge, spatial and land use management, qualifications and skills need by different organizations involved in the management system. This interplay and interaction is supported by proximity (Asheim, 2012). Further, proximity is a useful framework to analyse and to discuss differences between different modes of partnership examples and their interaction (Lundquist and Trippl, 2013) as well as to include externalities into the research (Massard and Mehier, 2009). In the literature, the term proximity is understood as 'beneficial for the transfer of knowledge' (Moodysson and Jonsson, 2007: 117). In analysing the proximity in flood risk management (see section 7.1), this research focuses on following categories: spatial, institutional, social, technology and relational proximity. These five proximities are adopted to examine the partnership approach in flood risk management, such as inter-local co-operation in Austria and national-local co-operation in England. The five proximities are highly relevant for flood risk management, because they incorporate structural and non-structural measures such as spatial planning, emergency management, risk communication, but also the aspect of stakeholder engagement in the decision-making practices. These are used to examine and to analyse the current partnership approaches and relationships in flood risk management. The aim is to provide a conceptual framework to analyse the dynamics in

spatial development and policy. In particular, proximity allows this thesis to analyse the interaction between the different actors and stakeholders involved in decision-making process.

Torre and Rallet (2005) defined proximity 'not only means being near him/her, but also means having a strong complicity within a person who is geographically distant, whatever that person belongs to the same circle of friends, family, or even to the same network' (ibid: 48). According to the authors, the inter-regional relationships have a less important role in the development of inter-regional co-operations compared to the intra-regional contacts and networks. The literature distinguishes between various types of proximity. Moreover, the term proximity includes more than just a geographical concept (Boschma, 2005). Torre and Gilly (2000) and Torre and Rallet (2005) distinguished between geographical and organisational proximity. The papers defined geographical proximity as the physical distance between the members of the co-operation, e.g. (1) naturally (in terms of km) and (2) based on individual judgement (in terms of individual perception and background). Organisational proximity is defined as the interaction and co-operation between the different members in the co-operation (Torre and Gilly, 2000; Torre and Rallet, 2005). It includes aspects of personal interactions and similarities between the different members, like sharing experiences, language, knowledge, and representatives (ibid.). However, Moodysson and Jonsson (2007) defined these arguments as 'vague and loosely defined' (ibid: 118).

Important contributions were also delivered by Boschma (2005) and Zeller (2004). Boschma (2005) divided the aspect of proximity into cognitive, organisational, social, institutional, and geographical proximity. Boschma's concept is closely related to the work of Torre and Gilly (2000), especially to the aspects of geographical and organisational proximity. However, Boschma (2005) gave a more in-depth analytical structure, because he introduced institutional frameworks and social relationships in the research framework. On the other hand, Zeller (2004) used the categories spatial, institutional, cultural, relational, technological, and virtual

proximity. In contrast to Torre and Gilly (2000), he focussed on the aspects of social capital and institution in the proximity discussion, to provide a more critical politico-economic framework to analyse the question of power and justice. Additionally, a fourth contribution was provided by Moodysson and Jonsson (2007). The authors divided the term proximity into (1) functional proximity (relative distance) and relational proximity (regulative, normative and cognitive aspects). Their research strongly focuses on the aspect of institutions. Furthermore, functional proximity refers more to the aspect to arrange meetings (face-to-face or virtual) during the working time instead of geographical distance. However, Boschma (2005) described the relationship between the various types of proximity as very complex.

2.5.Key findings

The consequences and impacts of new scalar re-arrangements have series of consequences in the political debate, e.g. needs of new structures, organisations and institutions to adapt to the new circumstances. This comprises new governance practices and includes new regulations and administration practices (Gualini, 2006; Moss and Newig, 2010; Gibbs and Jonas, 2000; 2001; Perkmann, 2007; see empirical results in chapters 6 and 7). Consequently, a result can be 'crises in the territorial regulation of development processes' (Thiel, 2009: 226). One key outcome is the re-design of the relationship between the different actors and stakeholders. Partnership is seen as one form of interaction between state and non-state actors in policy decision-practices (McCay, 1996). The co-operation process seeks to engage a large number of different stakeholders in the policy discussion at same scale (van Huijstee et al., 2007). The key aim is in consensus building between the different actors, stakeholders and citizens with defined responsibilities, power, rights and functions (Berkes, 2010; Margerum, 2002; 2008; Borrini-Feyerdon, 1996). Furthermore, Borrini-Feyerdon (1996) distinguished between a 'light' and a 'strong' version of collaboration. The 'light' version includes mainly the stakeholder consultation process. The key point is seeking a consensus regarding the problem

definition and enabling problem solving. The 'strong' version goes a step further and includes aspect of devolution processes. Here, co-operation processes encourage local authorities and stakeholders to take over certain tasks and duties from national or regional stakeholders (Berkes, 2010).

The key conclusions from this chapter are:

- Scales are never fixed, because they are a product of social processes under a political strategy and ideology. Rescaling processes included three main directions: upwards, such as European level; downwards, such as new localism or regionalism; or sidewards, such as privatisation and outsourcing public tasks to private actors, stakeholders and citizens.
- Scalar re-arrangement cause changes in the actual formal and informal codes and norms as well as changes in actual administration practices, which also include that actors and stakeholders can change their position in the decision-making practises (change of power relationships) to ensure their interests (scale jumping).
- New scalar re-arrangements have a strong influence in the change of level of activity and self-realisation between the different key actors and stakeholders in the policy decision-making practices.
- Governance often refers to non-hierarchical, flexible structures, that co-ordinate state and non-state actors, where the term plays a strong role in the new 'modernisation-reforming' discussion.
- Scalar re-arrangements have an influence on the definition of the duties and responsibilities between the different political units as well as between state and non-state. This had a central influence in the governance arrangements and structures. The horizontal level refers mainly to the out-scaling of duties and responsibilities, away from the public administration level towards private actors, stakeholders and citizens.

- Governance often refers to non-hierarchical, flexible structures to co-ordinate state and non-state actors and to define certain policy goals and measures. It gives a greater focus on non-state actors in the policy discussion. The term recognises the increasing influence of non-state actors in the current policy discussion (Stoker, 1998; Pierre, 2005). The focus is on the changing role of the state, away from the central planning and regulating organisation to a more a decentralised self-organised organism, which is quite flexible to adapt fast new developments and circumstances. A key role of the governance process is to ensure and enable different actors to co-operate. Important issues are the different relationships (horizontal, vertical, diagonal) between the different agents (Steurer et al., 2010).
- An important aspect in the development of these new governance styles and institutions are the social questions of democratic legitimacy, social equity, accountability, equilibrium in the decision process-less top-down approach, fair economic distribution and optimal allocation process of public tasks (Benson and Jordan, 2010; Gibbs and Jonas, 2000).

This chapter focussed on the politics of scale discussion in the literature. Examples of the analysis are presented in the chapters 6 and 7. A central argument is that scale arrangement hugely influences the governance structure and processes in society (Thiel and Egerton, 2011). The aim is firstly to use the framework to analyse and categories the relationship between the different actors and stakeholders in Austria and England and to explain the differences and commonalities between the different selected study sites to provide a more holistic understanding of the interplay between different local and regional actors and stakeholders in inter-local flood risk management co-operations. The next chapter provides an outline of the used research methods in this thesis.

3. Research methods

3.1.Methods overview

The central aspects of this thesis is to investigate and to explore the influence of new scales (inter-local co-operation or local level) on the interaction and performance of the different actors and their networks; particularly with regard to power, processes and scaled networks (Neumann, 2009). As discussed in chapter 2, scale is seen as a spatial-political construct, which is embedded in the socio-political and historically circumstances (Jones, 1998). Main factors are politico-economic and socio-psychological developments. This epistemological view, the concept of scale has to include socio-historical developments (Brenner, 1999).

The structure of this thesis (Figure 3.2) is using a heuristic – circular perspective with a focus on multi-methodology, based on primary and secondary data collection, multiple case studies as well as multi-analytical methods (Witt, 2001; Novy, 2002).

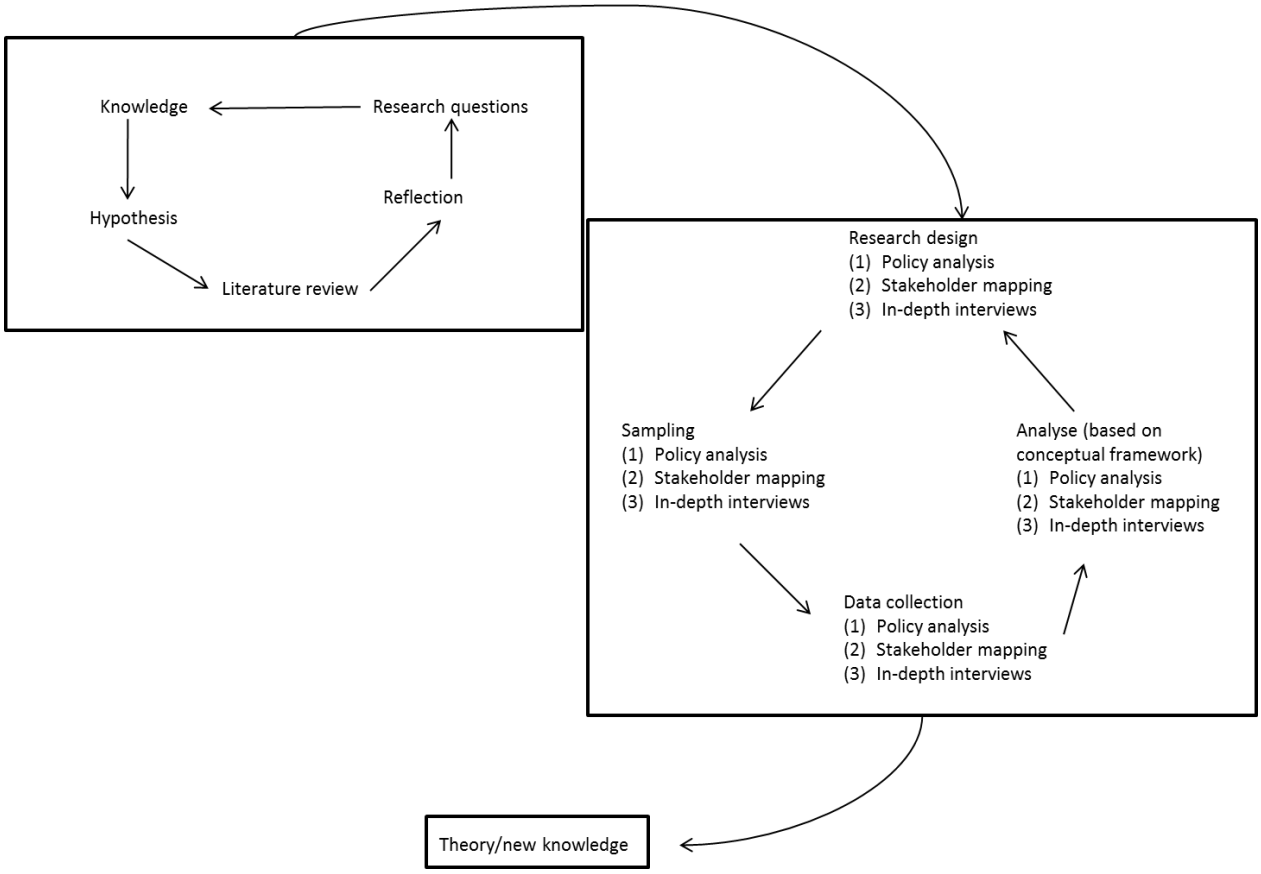

Figure 3.2: Iterative research design

Source: own development

Further, the research strategy distinguishes between three hierarchical levels (table 3.3):

- operational level (micro level),
- collective choice (meso level) and
- constitutional level (macro level) (Gibson et al., 2000; Turnpenny et al., 2008).

The micro-level refers to individual agents involved in the policy discussion. The research analysis is oriented towards the aspect of resources (human, time and financial). In general, the decision (choice) process is directed towards the input and the output of used resources and decisions made by similar organisations (Ciriacy-Wantrup, 1971). 'Operational choices are made by citizens and by public officials carrying out the policies made by diverse collectives' (Evans et al., 2002: 143). The meso-level covers the organisational structure (North, 1990). The policy assessment includes the aspect of organisational norms and cultures, formal and

informal decision rules, leadership and co-operation as well as co-ordination of the involved agents. The collective choice level selects and authorises individuals and organisations to define collective choices, i.e. new policy strategies and guidelines. The purpose is to define a 'general' approach and control instrument (e.g. economic efficiency and effectiveness, social justice and equity) for operational implementation of policy implementation processes (Ciriacy-Wantrup, 1971). The macro-level refers to the legal framework. Here, choices and policy discussion are related to 'the authority of collective actors' (Paavola, 2005: 12). Constitutional rules or policy levels are set up for a long term, so they change relatively slowly. Following Turnpenny et al. (2008), the data collection and analysis is based on three policy levels (micro, meso and macro). This has the advantage of having a holistic view of the social, political and economic relationship in society (Brenner, 2004).

Table 3.3: Policy decision levels and geographic domains in flood risk management

Spatial level	**Macro level**	**Meso level**	**Micro level**
EU	EU directives and regulation, e.g. EU-Flood Directive, WFD, Soil protection directive, Rural development program etc.	Policy making by European Member States, stakeholder engagement	Managing and supervising projects funded by international agencies.
National	Implementation of EU directives and regulation, e.g. national Flood and Water Law	Policy making by national legislatures, executives, courts, stakeholder engagement	Managing and supervising projects funded by national agencies.
Regional	Federal law and norms, e.g. regional flood action plans, inter-regional planning	Policy making by regional legislatures, executives, courts, stakeholder engagement	Flood protection, providing services, monitoring, sanctioning, land use management, managing and supervising projects funded by regional agencies.
Local	Norms and plans, e.g. emergency planning, spatial and land use planning	Policy making by local legislatures, stakeholder engagement	Flood protection, providing services, monitoring, sanctioning, land use management, funded by local agencies
Used method	Policy analysis; stakeholder and institutional mapping; in-depth interviews	Policy analysis; stakeholder and institutional mapping; in-depth interviews	In-depth interviews

Source: adapted from Gibson et al. (2000)

3.2.Thesis philosophy

In this thesis, I use the concept of 'interpretative social research' (*interpretative Sozialforschung*) to overcome the dichotomy between objectivism and subjectivism (Novy, 2002). The main idea is that each individual interview is different, but I have to take external (exogenous) as well as internal (endogenous) developments and factors into account for analysing the results, such as policy papers, administration practices, formal and informal rules and regulations. However, the research framework seeks to combine historical factors within politico-economic developments (dual analysis of the role of actors in flood risk management). The view on socio-political and historical developments allows the use of a qualitative-interpretative approach. The key aim is to understand and to analyse the structure and the contexts where the actors are embedded. Subsequently, this thesis adopts abductive reasoning to collect and to interpret the data (Arrighi and Ferrario, 2008).

In this PhD, rescaling is seen as how different actors, stakeholders and citizens get involved in the policy decision-making process; how these different groups see and define the different opportunities in the current policy debate, the way of debating, barging and negotiation between the different actors, stakeholders and citizens with same or different scale backgrounds. The aim is to analyse the social-spatial practices (where the social relationships and interactions are predominant) and representation of space (such as knowledge and power) under new scalar arrangements (Lefebvre, 2007). The use of a qualitative research design permits a better understanding of the complex research environment, especially to get access to additional background information for clarification of certain developments and decisions. In particular, Macpherson et al. (2000) underline the advantages of a qualitative research methodology. The authors state that 'qualitative research seeks to interpret social phenomena, to produce a rich understanding of the complex meaning of structures that social actors construct in their specific social environments' (ibid: 50). Also Smith (2001b) has underlined the advantages of qualitative methods, because they are 'a useful way of proceeding when we

are interested in a multiplicity of meaning, representations and practices' (ibid: 24). A qualitative approach, however also have limitations. In particular, the qualitative research method does not allow large and randomised samples. This causes difficulties in finding generalised conclusions. Furthermore, the relationship between interviewer and interviewee has to be free of value to secure objectivity (Tashohkori and Teddlie, 1998).

The research method applied in this thesis is centrally focussed on a qualitative research design. The aim is to adopt different theoretical concepts and methods, such as policy analysis, stakeholder and institutional mapping as well as semi-structured in-depth interviews (see next sections below). The different techniques were used as complimentary observations, and each technique was based on the previous methods and techniques.

This thesis uses a comparative approach to analyse the impact of new scalar arrangements and their influence to the politics on flood risk management. A comparative approach allows us to get a new understanding of national policies in a specific field (Chappell, 2010). It provides the 'opportunity to develop a deeper understanding of specific areas' (ibid.: 183). Further, the advantage of the use of a comparative technique is to control and to explain certain developments in the national policies, such as the political processes in flood risk management, and to overcome 'simple' explanations (Sartori, 1970; 1991). The idea behind is 'to identify the different combination of causally relevant conditions linked on an outcome' (Ragin and Strad, 2008: 431), in my case to understand the impact of new scalar arrangements on different actors and stakeholders in the decision-making process. Key advantages to using a comparative research are:

1) understand better the roles and interactions between different actors and stakeholders;
2) understand the influence of different institutional frameworks to the engagement of local actors and stakeholders in flood risk management; and

3) understand the relationship between different actors and stakeholders in the decision-making process, which is a crucial also in terms of opportunities in the political engagement.

The key objective in this thesis is to generate or to re-define theoretical concepts and discussions and not to test theoretical concepts and ideas (Mabry, 2009). Therefore, this thesis used an interpretative analytical technique to analyse the ex-ante and ex-post policy decisions and directions in flood risk managements in Austria and England (Dunn, 1994). In summary, this thesis uses two main data collection techniques:

- primary data sources (semi structured in-depth interviews) and
- secondary (grey) data sources (Ingstrup and Damgaard, 2013).

The main reason for this approach is to analyse the fluid change in scalar arrangements in flood risk management policies. The interconnections between the different methodological techniques are illustrated in table 3.4. The table highlights the different sampling techniques, data collection and analysing strategy. In general, each different method is based on the results of the previous research method, e.g. policy analysis as well as partly stakeholder and institutional mapping defined the sampling selection of semi-structure in-depth interview.

Table 3.4: Research structure

Method	Policy decision level	Data collection	Sampling design	Analysis	Interview design
Policy analysis	Macro and meso level	-academic papers -policy documents -legal acts	Analyse all relevant documentations	-critical social research (discourse analysis)	none
Stakeholder and institutional mapping	Macro and meso level	-academic papers -policy documents -legal acts -semi-structured interviews	multilevel sampling design based on : -identification from policy documents and legal acts -snowballing [a]	-thematic coding -critical social research	-open questioning -thematic problem-lead questioning
In-depth interviews	Meso and micro level	-expert targeting semi-structure interviews based on the outcome of policy analysis and stakeholder and institutional mapping	-multi-level sampling design -snowballing [a]	-thematic coding	-open questioning -thematic problem-lead questioning

a: snowball technique were mainly used to select case studies from recommendations from researchers and national authorities.

Source: own development

3.3.Qualitative research method

3.3.1. Policy analysis

The analysis of policy briefs, guidance and strategy documents are in this analysis central to understand the changes in past years and decades. In particular, policy documents provide formal rules in flood risk management policy to show the framework where the different actors and stakeholders can act (Hodgson, 2006). Within the policy documents and legal framework, views about who the main actors and stakeholders can be analysed. However, policy papers and documents significantly change over time. The method[15] of policy analysis aims to provide a critical evaluation and reflection of the current political ideology and direction (Dunn, 1994). The data collection provides an useful understanding of the definition of the general framework of the role of actors and stakeholders (ideal situation), which is socially and practically significant (Wildavsky, 1969). This means that it is more than the collection of random data (ibid.). The analysed technique is focussed on the critical social

[15] Following Downward and Mearman (2007), this thesis distinguishes between methodology and method. Method is the general technique in data collection, coding and analysing; it includes also the use of different techniques. On the other hand, methodology includes a three-stages proceed: (1) combination of different methods, (2) implementation at practical level and (3) assessment of the implementation process.

research (Harvey, 1990; Comstock, 1982). Critical social research allows for a conceptual framework within social relations and structures, such as the question of power (Harvey, 1990; van Dijk, 2001). Comstock (1982) highlighted that 'the function of a critical social science is to increase the awareness of social actors of the contradictory conditions of action which are distorted or hidden everyday understandings' (ibid: 371). Following this understanding, the data were analysed in terms of social interactions between actors, stakeholders and citizens in a given field of discussion, which is defined by the scalar arrangements. As a first step, all relevant data like research papers, consultant reports, reports, statement and acts from public authorities, press articles and online websites, e.g. http://www.hws-aist.at, were gathered. The critical social research permits us to analyse and to assess the consequences and impacts of scalar re-arrangements – which are strongly based on national political ideologies or the governance structure and interactions.

3.3.2. Stakeholder mapping

Stakeholder mapping (see also section 5.2.1, 5.2.5, 7.3.4 and 7.3.5) is an important tool in the policy research study, such as to analyse the legal framework and key stakeholders in flood risk management (Aligica, 2006). Morgan and Taschereau (1996) highlighted the importance of stakeholder analysis in policy research. Stakeholder mapping 'is an analytical approach for assessing the potential support or position to an issue among interested parties, including administrators, advisors and local champions. It is a basic first step in capacity assessment' (ibid: 3); by analysing the various stakeholders in the policy field, the conditions of relationship between the different agents at different scale, are highlighted (ibid.). A key objective is to understand the role and interests of the involved actors and stakeholders in the decision-making practices. A second point is to understand the legal limitations and responsibility of each actor and stakeholder to understand what is the role of each actor, what they do and do not. This is essential, because rules (both formal and informal) have a strong influence on the social structures (Hodgson, 2006).

This thesis used the Mendelow-Matrix (Posthumus and Morris, 2007) to identify and to analyse the key stakeholders and their influence in the politics of flood risk management in both countries. The Mendelow-Matrix (mapping technique to demonstrate the role of each stakeholder in policy process) provides a framework tool to classify stakeholders' position in the policy decision process. The aim is to evaluate of stakeholders influence in the ongoing policy decision-making practices. Key variables are the power to influence the policy as well as the interests to engage in the policy debate (Mendelow, 1981). Mendelow (1981) understood the use of power depending on dynamism of the stakeholders. High dynamic stakeholders are more likely to use their power position to influence the policy decision-making practices. This is necessary to identify the main actors and stakeholders involved in the discussion, their role and their responsibilities (Green, 2011). The stakeholder and responsibility mapping help us to identify who are the main actors and stakeholders in the policy discussion process, policy-making structures and decision-making practices. They permit on understanding of which interests and power they follow. Furthermore, stakeholder mapping also allows us to recognise responsibilities and accountabilities. Consequently, these institutional and organisational settings influence the social structures and provide the framework of interactions and influences of the different stakeholders and actors in the decision-making practice (Hodgson, 2006). This method is a key step in the understanding and analysis of governance (Nelissen, 2002; Mees et al., 2014; Driessen et al., 2012). An adavantage of the Mendelow-Matrix, in compare to other social network methods, is the possibility to include the dynamic developments in the ongoing policy discours. Further, the approach focuses on the assessment of the stakeholders' power within the policy decision-making process (Olander and Landin, 2005). Another advantage is the visual presentation to analyse similar patterns of different stakeholders at the same position, such as their willingness to participate and their potential influence (Romanelli et al., 2011; Reed et al., 2009).

3.3.3. Semi structured in depth-interviews

The aim of semi structured in-depth interviews is to understand better the current policy documents, especially background information and how they are adopted in practice: both factors are not available from the secondary data sources. 'Typically qualitative methods yield large volumes of exceedingly rich data obtained from a limited number of individuals and whereas the quantitative approach necessitates standardised data collection, qualitative researchers exploit the context of data gathering to enhance the value of the data' (Walker, 1985: 3). The advantages of semi-structured interviews is the flexibility in the data collection, such as the use of 'following-up' questions for further explanations and explorations which helps to understand current policy developments (Mabry, 2009). In addition, qualitative interviews can overcome the reduction of positivism and social constructionism in research as well as to reduce human interactions as numerical references (Marvasti, 2007). Following Marvasti (2007) 'qualitative research provides detailed description and analysis of the quality, or the substance, of the human experience' (ibid: 7). Disadvantages of quantitative research are the pre-defined limited scope in comparison to qualitative research methods, where the aim is to analyse complex themes (Doorewaard, 2010).

However, there are limitations. There is no neutral relationship between both groups, because researchers are not free of value, background knowledge, experiences and opinions (Novy, 2002). In fact, the 'interviews are not neutral tools of data gathering but active interactions between to (or more) people leading to negotiated, contextually based results' (Fontana and Frey, 2000: 62). Additionally, each interview is unique due to the interaction between interviewer and interviewee as well as due to social constructions (Fontana and Frey, 2000). These different factors have an influence on the data gathering as well as in the interpretation of the results. Throughout, additional limitations which need to be tackled include the simplification of the interpretation of the results, because comparison between the different

interviews is not always possible, because of different background of the case studies or different level of knowledge and experiences of the experts.

Based on the previous steps (see also sections 3.3.1 and 3.3.2), an interview guideline document was designed, also to increase the reliability of the research method (Mason, 1996). The interview themes were structured by the conceptual framework. Subsequent to Flick (1998), the process of data collection mainly included three key steps:

- recording of semi-structured interviewees and adding additional notes during and after the interview,
- transcribing of the recorded data and
- categorising and coding the text.

The interviews were conducted face-to-face or by phone, in general in the office of the interviewee, and took between 60 – 90 minutes. Furthermore, additional notes were taken during and after the interview. Towards the end of the interview, interviewees were encouraged to reflect on the dialogue and contribute additional information that they deemed to be relevant (Graham and Ernstson, 2012).

In agreement with Jackson and Trochin (2002), the open-ended questions encourage the provision of further information to explain the policy decision-making practices. The interview guideline document was also kept very flexible to be adapted to the interview partner and to the uniqueness of the case study. Nevertheless, the interview guidance follows the following headings:

- preconditions of partnership approach,
- development stage of partnership approach,
- role of different actors, interaction between different actors, and

- legal status of partnership.

The sampling (expert targeting) was concentrated on the results from the policy analysis and stakeholder and institutional mappings. A multilevel sampling design was used throughout this thesis (Onwuegbuzie and Leech, 2007): two or more subgroups were interviewed to understand and to analyse the knowledge and understanding of national, regional and local actors and stakeholders regarding new flood risk policy. Furthermore, the three levels show a hierarchical relationship. The sampling schemes and size between the three levels are not uniform, because lower-levels (such as local) represent a larger number of involved actors and stakeholders (Patton, 1990). This was necessary to interview actors and stakeholders who were involved in the policy definition, implementation and critical reviewing (such as academic or consultant) process. Criterion sampling draws attention 'to understand cases that are likely to be information-rich because they may reveal major system weaknesses that become targets of opportunity for program or system improvement' (ibid: 176+177).

This research study uses a judgemental or purposive sampling design. For the investigations of the network governance structures and processes, this research study primarily focussed on the involved key decision-makers (national, regional and local level) from the case studies (Somerville and Haines, 2008; Kramer and Revilla Diez, 2012). Selected interviewees were found through networks, recommendations from other interviewees and academics and especially from newspaper articles, academic journals and internet websites. They comprised a mix of academic, public authorities and relevant stakeholders. Selected interviewees (total n=49)[16] were selected from national authorities (n=10), regional authorities (n=11), local authorities (n=15), private actors (n=6) as well as from university and academic research institutes (n=7).

[16] Details of interviews see appendix 1.

3.4.Thematic analysis

The collected data were analysed using thematic analysis. A key objective of this thesis is to explore an understanding of scalar re-arrangements with the help of case studies. The use of case studies favours the application of a thematic analysis (Mabry, 2009). Mabry (2009) described thematic analysis as 'the identification of emerging patterns and categories from iterative reviews of the dataset, a process which marshals evidence for developing and warranting findings (ibid: 218).

Thematic analysis helps to identify emergent themes from the discussion, based on the literature review. The aim is to find similar patterns in the interviews to increase the robustness of the data (Fereday and Muir-Cochrane, 2006) and to provide normative conceptual models to explain relationships between the dependent and independent variables (Doorewaard, 2010; Marvasti, 2004).

For analysing the research results, this study uses a range of different analytical methods to interpret the data (Ryan and Bernard, 2005). Based on the research design, this thesis adopted a four step approach for analysing the data:

- preliminary model building
- model testing
- data collection
- open-ended interviews (ibid.).

As a first step pre-defined matrices and models were developed to answer my research questions as well as to reduce the amount of text and to organise the first results. This approach allowed a better comparison of the differences and similarities between the different case studies (Jones and McBeth, 2010). However, the disadvantage here is the 'research-driver-classification' restriction in the analysis of the data (Jackson and Trochin,

2002). Second step, a key-words-in-context (KWIC) method was performed to analyse key words in the transcribed text (Kramer and Revilla Diez, 2012), as a method for analysing free-flowing texts from the open-ended questions and to reduce the restriction from the 'research-driver-classification' (Ryan and Bernard, 2005). The KWIC involves highlighting key words or phrases to analyse their context (ibid.). Third step, a time-series analyses was conducted to understand and to analyse the developments in policy process over a defined time period (discussion, decision and implementation) to study the dynamic developments over time (Boschma and Fornahl, 2011; Yin, 1994). The advantage in using the different techniques tested in the understanding of the integration processes of co-governance approach in the different case studies. An important aspect was the categorisation of the data. Based on the circular research design (figure 3.2), this research study conceptualised ideal models, to analyse the partnership relationship (horizontal and vertical) in flood risk management (see chapters 6 and 7). These models are motivated by work done by Lundquist and Trippl (2013), Plummer (2009) and Ingstrup and Damgaard (2013). Nevertheless, the analysis of the results is based on subjective knowledge with the key aim to understand the structure and context of scale construction and new state spaces (Brenner, 2004) as well as process and performance of the actors (flood risk governance) in the new state spaces.

3.5.Triangulation research strategy

The use of triangulation is an important objective in this research study. Triangulation is a technique to use different methods, theories or data to analyse a specific research problem. Triangulation is widely accepted in the social science, especially in studying policy interventions or evaluation studies (Blaikie, 1991). The aim is to overcome one-side positions of view in a research (Downward and Mearman, 2007). The main motivation is to test, compare, confirm and control the collected data and the interpreted results from different perspectives with the aim not to simplify them to a single explanation. Underlying these academic positions, 'triangulation implies combining more than one set of insights in an

investigation' (ibid: 80). Overall, the thesis uses three of four main forms of triangulations, namely (1) data source triangulation, (2) method triangulation and (3) theoretical triangulation (table 3.5).

Table 3.5: Taxonomy of triangulation

Taxonomy of triangulation	Short description	Thesis
Data source triangulation	Gathering data from different sources, times, location and community	Data collection from: policy documents, briefs, legal acts and semi-structure interviews with experts from national, regional and local level
Method triangulation	Use of different research methods for data collection, integration and analysis	Use of three main qualitative methods: policy analysis, stakeholder and institutional mapping and semi-structured in-depth interviews
Theoretical triangulation	Use of more than one theoretical perspectives to analyse the research questions	Combing theoretical concepts from political geography (section 2.1), public administration (section 2.2) and economic geography (section 2.4)
Investigator triangulation	Research team – more than one researcher dealing with the same research problem	None

Source: adapted from Downward and Mearman (2007) and Mabry (2009)

This thesis is using different data sources from written documents and oral interviews. Although the method of triangulation is mainly understood as the use of quantitative and qualitative research methods (Fiedling and Fiedling, 2009), this thesis integrated different qualitative methods to examine the changes in scalar construction in flood risk management. This thesis combines different research methods based on gathering different data sources; not only for data collection, but also in analysing the data. Relevant actors and stakeholders from different positions (national, regional and local) and places (different study sides) were selected for interviews to assess the consequences and impacts of new policy interventions (scalar re-arrangements). Furthermore, this thesis uses more than one theoretical tradition to

understand and to analyse the data to support to answear the four research questions (see section 2.5). As previously mentioned, the key theoretical strengths in this thesis are the combination of theoretical concepts used in political, geography and economic sciences. This allows using different views from different research disciplines. A key reason for this is to not limit my view of the data to enhance the validity of the data and results (Mabry, 2009). The key advantage is to understand the research problem from different lenses (Downward and Mearman, 2007). In particular, to close the research gaps in each theory, such as lack of analysing partnership relationships in flood risk management (economic geography) or to understand the interaction of scalar arrangements (politics of scale) and their impact to politics of flood risk management.

In this line, an important aspect is the reliability and validity of the data and results. For ensuring the validity and reliability of the data and results this thesis used four main strategies:

- use of multiple methods,
- interview quotations,
- revisits and verification by interviewees and
- use of theoretical concepts to support the findings (Baxter and Eyles, 1997).

First, each of the semi-structured interviews was recorded by an audio recorder. Furthermore, I took notes during and after the interviews, which were used for the analysis. Each interview tape was fully transcribed into text. I transcribed the Austrian interviews and the English interviews were transferred by an external person. No translator was used for the Austrian or English interviews. However, each externally transcribed transcription was carefully checked for incompleteness and false transcription to avoid misunderstanding and misleading in the interpretations. The second strategy was the use of interview quotes in the thesis. The interviewee references and quotes were coded in the format of ‘i1’, ‘i2’ etc. (Perkmann, 2007). For each interviewee reference I added the acronym of selected countries (eng for England

and aut for Austria, for example i1aut). This is a central aspect to conceptualise evidence in the results.

Influentially, with all research a central problem refers to the reliability of the data (Mason, 1996). The transcriptions were returned and discussed with responders to clarify and to verify meanings of interview and interpretations (Baxter and Eyles, 1997). In addition, the thesis used theoretical concepts to support the findings from the empirical results and also to demonstrate rigorous results (Fereday and Muir-Cochrane, 2006). Finally, the thesis used a triangulated strategy for validating the results. Nevertheless, triangulation is no guarantee for full validity, but strongly increases the validity of the research (Fiedling and Fiedling, 2009).

Another critical element refers to my positionality in this research study. My positionality informs the reader of this thesis my relationship to the selected case studies and the influence in analysing the data (Butler, 2007). An insider and outsider position in a research is a critical aspect, in particular to avoid misinterpretation of data (Merton, 1972; Kerstetter, 2012). In the literature, the insider and outsider problem was strongly discussed in the community-based research, such as by Ryan et al. (2011) or by Kerstetter (2012). 'Outsider' is understood as a non-member of a 'group', on the other hand and the 'insider' takes part of the 'group'. The term "group" is here understood as the selected countries. Insiders share the advantages to have privilege access and knowledge, which can enrich the study with knowledge and data. Nevertheless, the insider researcher may be compromised by a stronger subjective perspective on data. Kerstetter (2012) contests that the major challenges and barriers are to distinguish between personal experiences and research work. On the other hand, an outsider acts in a less 'personal' (or emotional) way during the research process as an insider.

In international research studies a central challenge is to have simultaneously an insider and outsider position; to have an insider perspective in one case study and an outsider position in another case study. This would be misleading the interpretation of the data from one case

study in comparison to the other. With regard to the in-depth research conducted in Austria and England, I had the same 'cultural outsider' position to analyse the current flood risk management policy. The advantage was to have the independent position in both case studies for analysing the current policy developments and shifts and the impact (Ley and Mountz, 2001).

3.6.Key findings

In this chapter I showed my methodological approach to undertake this thesis. The structure of this thesis is using a multi-methodology, based on primary and secondary data collection, multiple case studies as well as multi-analytical methods (Witt, 2001; Novy, 2002). The main aim is to incorporate socio-political and historical developments to understand and to analyse the structure and the contexts where actors are embedded, as to interpret and to explain the differences and commonalities between the different selected study sites to provide a more holistic understanding of the interplay between different local, regional and national actors and stakeholders in flood risk management policy. The research method applied in this thesis is centrally focused on a qualitative research design, because there exists a lack of sufficient information and data from the secondary data sources, so a qualitative methodology is a useful instrument to collect new data (Walker 1985). The aim is to adopt different theoretical concepts and methods, such as the policy analysis of flood risk management documentation, stakeholder and institutional mapping as well as semi-structured in-depth interviews. Therefore, this thesis used an interpretative analytical technique to investigate the ex-ante and ex-post policy decisions and directions in flood risk managements in Austria and England.

4. Case study approach

The goal of this thesis is to understand and to assess the governance structures in flood risk management, especially in relate to role of local communities in flood risk policy. A case study approach permits exploratory in-depth research which focuses on achieving an understanding of the problem (Eisenhardt, 1989; Yin, 1994; de Leeuw et al., 2012). The thesis uses case studies to provide an exploratory research approach (Yin, 1994; Eisenhardt, 1989) to understand and to evaluate new politics of scale strategy and the impact towards governance structures. In particular, strategies and initiatives for developing partnership approaches in flood risk management will be identified focusing on different temporal and spatial scales. The niche developments will be assessed and new societal contracts in flood risk governance as well as their limitations and barriers in the implementation process will be studied. The use of case studies allows this thesis to investigate how flood risk management policy functions in practices, in particular to explore the consequences and impacts of the changes in the scalar re-arrangements. This thesis used case study research as the main strategy in collecting data and interpretating the results. Case studies are a suitable instrument and technique to generate or to re-define theoretical concepts and discussions (Marby, 2009). The key advantages in using case studies are to clarify or re-frame theoretical concepts and ideas, because of the possibility to test general theoretical concepts (Flyvbjerg, 2006). Furthermore, this technique is suitable in generating new knowledge based on the intensive in-depth analysis of a research problem (ibid.). In order to generalise the results from the case studies, this thesis also uses normative (conceptual) models to interpret the data (see chapter 6 and 7). Influentially the empirical results are used to support and clarify as well as specify the normative choices associated with the different political, geographical and economic theories as well as to provide recommendations for policy actors and stakeholders (Keessen et al., 2013).

The research is concentrated on a complex issue with the aim to 'extend experience or add strength to what is already known through previous research' (Dooley, 2002: 335). Kumar (2008) identified the advantages of using case studies for 'the investigations of a new area, in which there is little information available and thus case studies provide a rich source of ideas' (ibid: 49). The key principle is that the research interests on a specific problem and development and the 'wishes to understand it completely' (Dooley, 2002: 337). Yin (1994) described the goal of using a case study based on qualitative research method to provide a contribution to the theoretical concepts and ideas. The main aim is not to provide universal solutions. Furthermore, the use of multiple case studies can help to reflect more critically on the results (Blatchford, 2005) and especially to overcome the positivist paradigm in the research study (Macpherson et al., 2000). The authors 'advocate case study research that not only produces rich understanding of social sites and the meaning structures created by the actors who operate there. We aim to use this understanding to inform actions that can effect changes to social practices and public policy' (ibid: 54).

However, a case study approach includes limitations, such as the simplification of the research environment. Verschuren (2003) defined the case study research methodology as: 'a research strategy that can be qualified as holistic in nature, following an iterative-parallel way of preceding, looking at only a few strategically selected cases of sub-cases, observed in their natural context in an open-ended way, explicitly avoiding (all variants of) tunnel vision, making use of analytical comparison of cases or sub-cases, and aimed at description and explanation of complex and entangled group attributes, patterns, structures and processes' (ibid: 137). This limitations can be reduced though well-defined (see next section) site selections and drawing also on broader number of examples. This thesis selected six different study sites in two European countries to analyse, to assess and to understand the impacts and consequences of scalar re-arrangements in flood risk management.

Following Yin (1994), the selection of case studies should ensure:

- literal replication (similarities between them) and
- theoretical replication (differences between them).

The advantages in using more than a single case study approach is to encourage the empirical investigations and furthermore to develop new aspects and views in the theoretical concept of politics of scale in flood risk management. Multiple case studies provide a broad variety of results, especially to see better the differences and the patterns between the different case studies (Kramer and Revilla Diez, 2012; May, 2007) and to ensure an 'analytic generalisation' (Verschuren, 2003).

4.1. Justification for selection of case studies and study sites

This thesis selected Austria and England as its primary research focus based on various criteria (matching, qualitative assessment and cross-case test) with the aim to generate and test research objectives and questions to provide new explanations. The selection processes include the choice of one or more case studies, where one independent variable as well as one dependent variable shows similarity, where other factors include different values (Gerring, 2006). Seawright and Gerring (2008) emphasised the possibility to mix and match different strategies. Further, the selection processes includes also the recommendations from interviews with national Government and research scholars.

The changes in the politics of scale and the impact in flood risk management policy seem to lead to similar developments in other European countries, especially regarding partnership approaches between inter-local/regional or national-local organisations. For this reason the selection process of the case studies underlined a first screening in different European countries for flood management policy and policy shifts in past years based on the new politics of scale. Based on the literature, I found similar partnership approaches in flood risk

management in the European countries Austria, England, Germany, Italy, the Netherlands and Scotland. The table below shows some examples in Europe.

Table 4.6: Logics of politics of scale construction in flood risk management

Politics of scale	**Examples**
Inter-local co-operation	Wupperverband or Weisseritz Regio (Germany)
Inter-regional co-operation	Water boards (the Netherlands)
Regionalism/localism	South Tyrol (Italy), Switzerland
State-non-state co-operation	Tweed-Forum (Scotland)

Source: own development

In the Netherlands, Scotland and Germany, the literature provides examples of inter-local partnership approaches in flood risk management (Moellenkamp et al., 2008; Mostert, 2006; Janssen, 2008; Wirth et al., 2008; Cook et al., 2013).

In these countries flood risk management has been institutionalised for decades, but with different institutional settings. As a result, multiple dimensions of vulnerability (Cannon and Müller-Mahn, 2010) as well as challenges at the science-policy intersection have been exhaustively studied. This will help to identify wider lessons for other European regions currently working on the implementation of climate change adaptation strategies arising from flood risk (Butler and Pidgeon, 2011; Hanger et al., 2013). Germany and the Netherlands were excluded, because the policy interventions refer to inter-local co-operations as consequences of scalar re-arrangements undertaken too long ago, e.g. Wupperverband established in 1933. The aim of this thesis is to understand the arguments and discussion at a political level, to analyse actors and stakeholders engagements in the policy planning and not only in the implementation processes. Scotland was excluded because the scalar re-arrangements – partnership approaches – show strong similarities and overlaps with the English flood risk management system. Cook et al. (2013) showed various examples of catchment management plans, which include the co-operation between different local authorities and other agents in a

catchment, e.g. Dee Catchment in Scotland or Tweed Catchment alongside the Scottish-English Borderlands. One objective of these co-operations is the reduction of risk in the downstream communities, for example for the town Galashields. However, also in this case the co-operation does not include an implementation of inter-communal flood defence schemes. Overall, the vertical partnership approach is found in only a few cases, because it is not on the national nor local political agendas (i30eng). The project of new partnership funding schemes shows the need of a strong relationship between the different actors, especially between the key drivers in the project for closing the financial gap for the realisation of the flood defence proposal. Finally, Italy was excluded, because of a lack on actual national policy intervention in past years as well as due to the insignificant role of local authorities in flood risk management. Further the Italian legal system includes no compensation for using farmland for flood protection (Zischg et al., 2011). In addition, the country does not show clear rules in responsibility in flood risk management or funding schemes. A first important criterion emerged from the key literature with focus of this research: aspect of co-governance in flood risk management. Key aspects were the gaps in the literature about developing partnership approaches in flood risk management.

This study aims to get a broad range of results, so it was decided to include different types of flooding (especially flash flooding, flooding in combination with debris flow and fluvial flooding), different community size and type (urban and rural locations of varying size, e.g. village to urban areas). Furthermore, a selection criterion was also the legal framework in the different European countries (e.g. Austrian Water Act from 1959 and funding levy as well as United Kingdom Flood and Water Management Act (2010) and Localism Act (2011)). The new strategy included a shift in the lead responsibility towards local organisations to determine local strategies to manage local risks. Table 4.7 summarises the main criteria for the selection of the study sites.

Table 4.7: Justification for the selection of the study sites

Criteria	Justification	
	Austria	England
type of flooding: different types of flooding (flash floods, fluvial flooding, debris flow),	Inclusion different type of flooding, mainly flash flooding with the combination of debris flow or fluvial flooding	Mainly fluvial and pluvial flooding
flood frequency and recent flood history	Recent flood events: 2002 and 2005 – national impact	Recent flood events: 2000 and 2007 – national impact
previous research results	Yes, Floodrisk I and II project	Not relevant
different socio-economic structures	Rural vs. urban	Grassroots organisations vs. non-grassroots organisations
different Federal States	Yes	Not relevant; no partnership funding agreement in Wales

Source: own development

Type of flooding and recent flood history

A first criterion refers to the recent flood frequency and history. In the past 20 years, Austria experiences of major flood events occurred in 1991, 1997, 1999, 2002, 2005 and 2009. These events included different flood types, e.g. 2002: fluvial flooding, 2005: flash flooding in combination with debris flow), and affected different areas in Austria, e.g. 2002: Upper and Lower Austria; 2005: Vorarlberg, Tyrol and Salzburg. The selected study sides include areas affected by different flood events in the past 20 years; Triesting-Tal (1991, 1997 and 2002), Aist (2002) and Ill-Walgau (1999 and 2005). The three study sites are characterised mainly by fast running torrent streams. Furthermore, the Aist and Ill-Walgau study sites are characterised by the combination of flooding and debris flow (landslide and woody debris).

The English case study relates to areas, which were affected by several flood events in the past 15 years, especially in the years 2000, 2005 and 2007. The selected study sites show a recent flood history in the past 10 years. Cockermouth, for example, was affected in 2005 and strongly in 2009 and the town Morpeth was strongly affected in 2008. Further, the study sides include also various flood events with a return-period higher than 1:100 (Kundzewicz et al.,

2013), such as Morpeth (2008), Cockermouth (2009), Aist (2002), Ill-Walgau (2005) and Triesting-Tal (1991 and 1997). Furthermore, all three selected study sites show risks from different types of flooding, often in combination. Morpeth, for example, was affected by fluvial, pluvial and drainage flooding in 2008, together with already wet soil levels with no capacity to absorb further moisture (JBA, 2011).

Previous research study

Second characteristics were previous research studies: Triesting-Tal – Floodrisk I project (finished in 2004) and Aist – Floodrisk II project (finished in 2009). The key aim of this work is to build on these previous studies as well as to bring new perspectives and aspects in this field (see also Rouquette et al., 2011). While previous studies focussed on the pre-conditions for building an inter-local co-operation, the level of co-operation and role of local and regional actors have not yet been studied. In relation to the English case study there was little previous research conducted on the implementation of partnership funding in flood risk management in England.

Socio-economic structures

An aspect was the different community size and types, especially to understand better the conflicts in the co-operation group (upstream/downstream conflicts or urban/rural conflicts). The three English study sites have a similar community size and type in comparison to the Austrian study sites. The selected study sides are mainly based in rural areas, having in general small to medium sized communities. Morpeth and Bridgwater have an important position for their district, because they are the administrative headquarters. The socio-economic data between the three English study sites are broadly different. The key objective for Bridgwater is the regeneration of the urban area, because of large socio-economic challenges. On the other hand the communities Morpeth and Cockermouth show classical white 'middle' class rural areas. Morpeth shows a large number of people are employed in the public sector and

Cockermouth is a well frequented tourism attraction in the Lake District (i39eng; i43eng; i35eng).

Political administration (Federal States)

A fourth attribute was the different area/political backgrounds of the study site. This criterion is only relevant for Austria to explore the national framework in practices in the different Federal States in Austria. The Austrian flood risk management system is based on a regional level (Federal State level). There are considerable differences between the different administration units, relating to spatial and land use, emergency management, compensation funding, funding scheme, flood risk management strategies etc. In general, Austria has nine different flood risk management systems, because of the nine different Federal States. In this line, this research study chose three different areas from different Federal States to investigate the differences and similarities regarding inter-local co-operation. Final, the selection of Ill-Walgau study site is based on the type of members in the co-operation. In this study site, the co-operation process includes state and non-state actors and only Federal Water Engineering Administration (BWV) of Vorarlberg (implications in network governance see also chapter 7).

4.2.Selected case studies

This chapter presents the selected case studies and study sites for this research. The research selected two European countries – Austria and England – to analyse the scalar re-arrangement and their implications and consequences for national and local authorities in flood risk management.

4.2.1. The Austrian flood legislation framework

The Austrian legislation includes a wide range of different laws relating to flood risk management (table 4.8). In general, the Austrian legislation, based on the federal structure, distinguishes between national and regional acts. The main national acts include the Forest Act (1975) (Republik Österreich, 1975), the Water Act (1959) (Republik Österreich, 1959) and the Hydraulic Engineering Assistance Act (1985) (Republik Österreich, 1985). The Austrian flood

risk management system goes back to 1884 with the first official act dealing with flood risk management. The act foresees the implementation of flood alleviation schemes in the upper part of the catchments to reduce the vulnerability in the overall catchment (Holub and Fuchs, 2009).

Table 4.8: Overview of main legislations affecting Austrian flood risk management system

Act	Short description
Water Act (1959)	General rules and framework for Austrian flood risk management system, such as legislations about building inter-local flood risk co-operations; definition of the role of each actor in flood risk management
Forest Act (1975)	Delimitation of hazard zones in the upper part of the catchment areas vulnerable to mountain hazards, such as mountain torrents, rock falls or snow avalanches
Hydraulic Engineering Assistance Act (1986)	Regulation about the funding scheme in the Austrian flood risk management

Source: adapted from Holub and Fuchs (2009)

At federal level, different acts, which set out the rules for actors, in regarding spatial and land use management exists as well as emergency management and disaster compensation (Holub and Fuchs, 2009; Kanonier, 2006). However, the different acts are not harmonised or co-ordinated between the different Federal States (Holub and Fuchs, 2009). This means that there are a wide range of different interpretation and legislative requirements between the different Federal States (i9aut). In spatial and land use management, for example, we observe a wide range of different legal requirements (Kanonier, 2006). Some of the Federal States follow a quantitative approach, such as land use restriction based on a quantitative restriction, e.g. in areas with a flood return period of 1:30 (Upper Austria), or use qualitative restrictions, such as no new developments in significant risk areas (e.g. Vorarlberg), which includes a wide range of interpretation (ibid.).

Further, the EU Floods Directive[17] influences the Austrian flood risk policy. In Austria the Government updated the existing Water Act from 1959 in 2011 with the main headings and requirements from the directive. In Austria, the key challenges and barriers have been the

[17] More detail information about the EU-Floods Directive see appendix 2.

harmonisation of the management approach of both authorities (WLV and BWV). First, the EU-Floods Directive is focussed mainly to the lower part of the catchments, since the focus of the directive is on flood risk management instead of a multi-risk approach. This is a key issue in the upper part of the catchment. The consequence is that the WLV is less involved in the discussion and management planning. The second challenge refers to the different standard scenario. The WLV has designed their standard protection according to a 1:150 expected frequency. On the other hand, the BWV as well as the EU Floods Directive and the Austrian Water Law 1959 use the Central Europe standard probability of 1:100. This provokes conflicts between both organisations in the border area (see also section 7.1.4). Further challenges are the different funding schemes, system maintenance and the use of structural measures. However, since 2010s both organisations organised various working groups to harmonise their different management approaches. Further challenges refer to the definition of terminologies, such as risk or residual risk and their use in the decision process.

In the past decades, the Austrian flood risk management policy already has moved away from a technical management approach. For example, after the 2002 flood event the Federal State Lower Austria strongly invested in the early flood warning system, training of blue-light experts and the development of emergency management plans at local levels or the development of flood risk maps for the Federal State based on different return periods (i1aut; i8aut). Furthermore, since the late 1990s/early 2000s some Austrian Federal States move their spatial focus from local flood alleviation schemes towards a broader focus based on inter-local flood risk management activities. However, there exists various gaps between the legal – theoretical frameworks and the practical implementation. Specifically, there is no common definition of risk, and there are large differences in the flood risk management system (e.g. prioritisation of measures) between the different Federal States. Furthermore, we can find a lack of co-ordination and co-operation between the different federal states (i26aut). A further key challenge is the development of flood risk management plans. Until now it is unclear who is

responsible for the development and the implementation of the flood risk management plans. This includes also strong challenges with the integration with other fields, e.g. the emergency management and spatial and land use management planning. Here, the Austrian policy has shown strong barriers in the collaboration in an interdisciplinary approach (i23aut; i24aut; i25aut; i28aut; i44aut). Furthermore, the role of the citizens in the management process is still unclear and undefined, especially the question how to encourage local citizens to engage in the planning process and what to do with the outcome of the stakeholder process (i2aut).

4.2.2. Austrian organisational level of flood risk management

In general, the WLV (Austrian Service for Torrent and Avalanche Control) and BWV (Federal Water Engineering Administration) have the responsibility for preventive flood risk management in Austria. The BWV, in contrast to the WLV, are under direct control of each Federal State, with the consequence that both organisations act under different level (WLV under national level and BWV under regional level). The local authorities have the responsibility for spatial and land use management plans as well as emergency management for local events. However, the Federal State (Department for Water Engineering Administration and Department of Spatial Planning) and the WLV have the legal right to give advice for new residential and non-residential developments. Based on the used governance definition, the figure 4.3 provides an overview of the key legislations with the definition of policy and operational responsibility in the Austrian flood risk management policy discussion.

At national level, the key actors are the WLV and BWV dealing with the problem of flood risk management. Both organisations have the responsibility to define the policy strategy for the country. Furthermore, both organisations have the operational responsibility of the flood policy as well as provide a large contribution to the funding scheme (approximately 80% of the total costs[18]). Regarding non-structural measures, both organisations have a limited role, e.g.

[18] The flood risk management funding is based on national and local taxation; nationally guaranteed funding towards regional and local authorities.

development advice to local spatial and land use management plans. In respect of multi-hazard risk management, only the WLV has the responsibility for avalanche management.

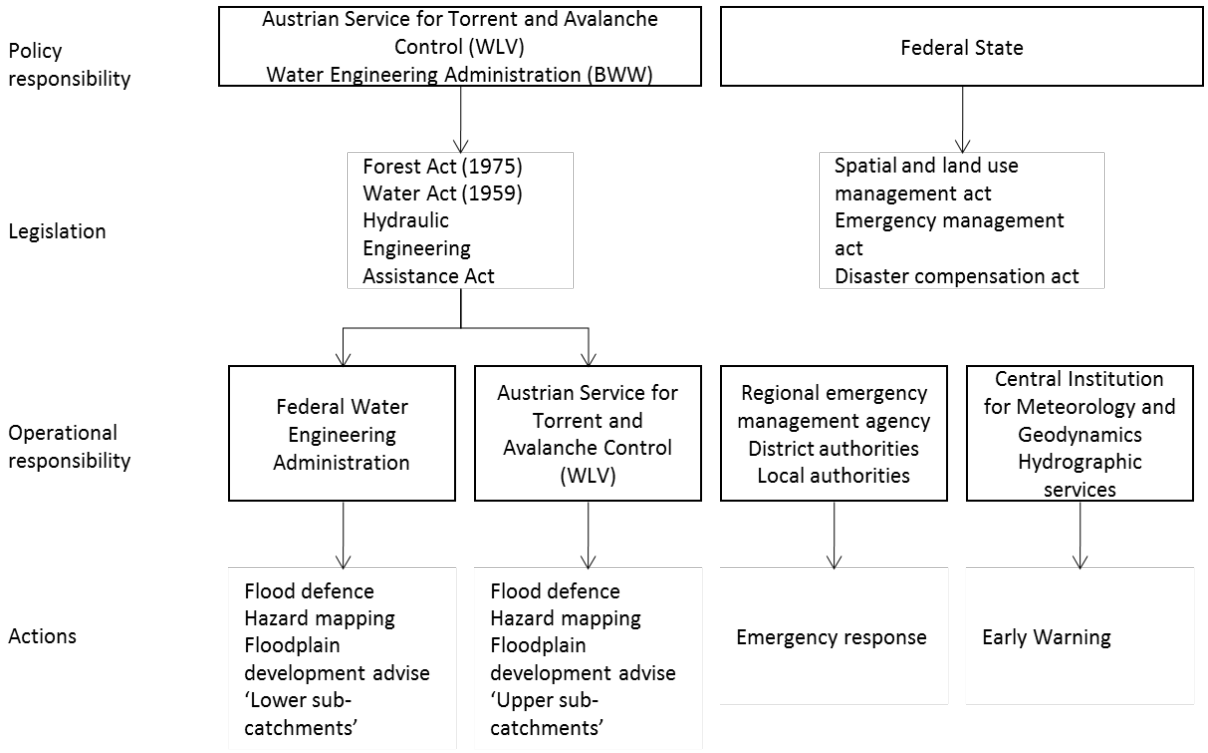

Figure 4.3: Legislation structure in flood risk management in Austria

Source: own development

4.2.3. Inter-communal flood risk management in Austria

The Austrian Water Law 1959 (Article 87) permits buildings a formal co-operation under public law. According to the interviewees the legal framework has simplified the co-operation process. Interviews show a high importance in the legal framework as an orientation of development of inter-local co-operations. The governance structure and model in inter-local co-operation remains highly hierarchical organised with the consequences that legislation is a significant stabilising construct in flood risk management policy. The Austrian Water Act guarantee the powers of the involved actors and stakeholders in flood risk management, such as representation, funding, type of organisation and end up the co-operation (Malova and Sivakova, 1996). For example, the Article 88b from the Austrian Water Law (1959) allows the regional authorities to enforce the co-operation between the different stakeholders at local

level, e.g. communities, non-state actors. The co-operation is based as a legal co-operation under public law (Austrian Water Law 1959, Article 87). The co-operation with non-state actors (Austrian Water Law 1959, Article 87 (2)) is not given. The Austrian Water Act (1959) provides the legal framework to organise formal co-operation between communities and non-state actors to share the costs.

Since 1990s, Austria introduces a paradigm shift in flood risk management policy. This shift was encouraged with the change of the executive board at regional or field construction management level. Furthermore, since 2000s the Forest Engineering Service in WLV emphase the use of catchment-management plans (regional studies) to achieve a more holistic view of the catchment. However, these instruments were introduced in the Hydraulic Engineering Assistance Act regulation in 1985, but it never found any support in the public administration, because of high transaction costs and conflicts with local authorities. An important aspect is the formal-statutory mandatory agreement between different actors to define different tasks, duties and responsibilities. The consequences are a highly institutionalised co-operation agreement (Wirth et al., 2008; Beutl, 2010). Furthermore, an important stakeholder is the Austrian Federal Forests Ltd. The Austrian Federal Forest Ltd. is responsible for the national-public forest areas. In the three study sites the majority of land is used for agricultural or forestry purposes (Seher and Berger, 2009). The key owner are private actors, however large areas are under the responsibility of the Austrian Federal Forest Ltd. Other stakeholders are several non-governmental organisations, such as WWF or Austrian Nature and Biodiversity Conservation Union. Their key objectives refer to the protection and creation of habitat areas in floodplain areas (Naturschutzbund, 2010).

A second conflict refers to the decisions for ranking the implementation of the flood alleviation schemes. In Triesting-Tal, for example, the inter-local co-operation initiated the first two flood storage projects in the upstream municipalities Altenmarkt an der Triesting and Furth an der

Triesting. The key objective was to achieve their support for the future projects in the catchment (coalition building) (i5aut). In the Aist study site it was decided to introduce various flood storage areas across the catchment, mainly based on a 'watering-can' principle. In particular, the first implementation phase showed a high degree of political decision to satisfy the local authorities instead to introduce large flood storages, which have an impact for the whole catchment. The level of conflict (as well as transaction costs) depends on the level of separation of interests, which has a direct influence in the ability of implementation of flood risk management plans, such as the empirical results shows from the Triesting-Tal study site. The various interests between the policy makers from different local authorities delayed the realisation of the inter-local flood risk management plan by around 10 years (i5aut; i7aut).

4.2.4. Selected study sites in Austria

From the Austrian case study I selected three different study sides (figure 4.4) in three different Federal States to analyse the differences and commonalities to achieve a broader overview of the development of partnership approaches in flood risk management. One criterion for the selection of the study sites was also the availability of previous studies (pattern matching). Key objectives were to analyse similar patterns as well as new concepts (Eisenhardt, 1989; Yin, 1994). The Floodrisk I project (Habersack et al., 2004), for example, analysed the potential of the use of inter-local co-operations combined with a flood risk management as well as spatial and land use management planning. Nevertheless, the research study analysed only the potentials of inter-local co-operations in the flood risk management without analysing fully the drivers of the creation as well as the integration of the co-operation. Or the study conducted by Seher and Berger (2009) concluded with the foundation act of the inter-local co-operation, but did not provide any results about the performances of the interplay between different local and regional actors and stakeholders. This thesis starts from their results and is focused on the latest developments in the inter-local co-operations as well as on the performance and interplay between regional and local actors and stakeholders.

Besides previous research studies, an important criterion was the selection of different governance settings and network structures. The Ill-Walgau study site, for example, was selected, since it includes an involvement of non-state actors and stakeholders in the inter-local co-operation.

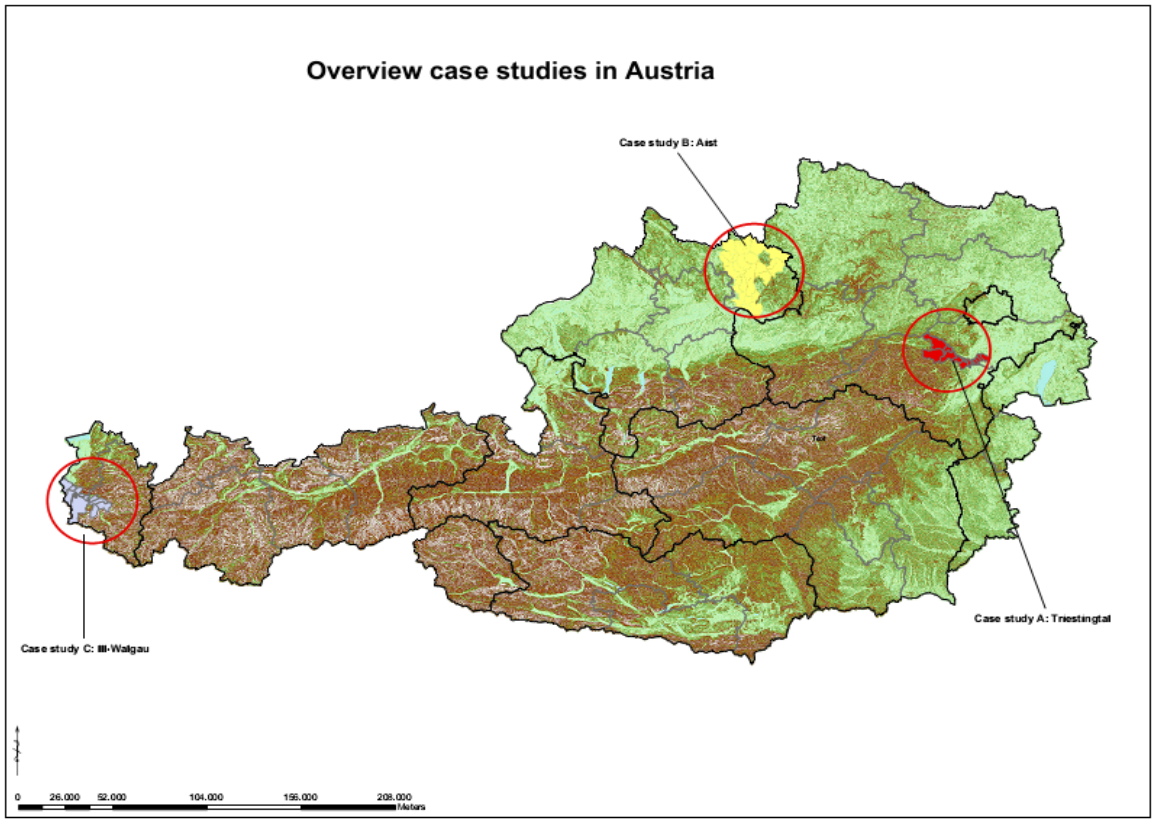

Figure 4.4: Overview Austrian study sides

Source: own development; © Lebensministerium (2007)

Triesting-Tal (Austria)

The first study side selected in Austria was the Triesting-Tal co-operation in the Federal State Lower Austria. The River Triesting (figure 4.5) is the first selected study site as to assess the interaction between national, regional and local authorities in inter-local flood risk management concepts. The Triesting-Tal inter-local co-operation was founded in 1968 with the key objective of maintaining the local flood defence measures with an annual budget of 7,000 € (i5aut). In the early 2000s, with the personal change in the WLV-authority, the WLV

started with the Regional Study Triesting-Tal. However, the focus was on the torrent river Further Bach, which includes one third of the overall catchment size. The outcome of the Regional Study Triesting-Tal showed the need for a more holistic understanding and view of the Triesting-Tal in respect to flood risk management (i7aut). The study identified the implementation of flood storages in the upstream communities, e.g. Furth an der Triesting, as well as linear flood defence measures in the different communities (i7aut; i8aut). The inter-local co-operation share the responsibility in building flood defence measures between the inter-local co-operation and the local authorities. In general, the local authorities have the responsibility for the implementation of local protection measures. On the other hand, the inter-local co-operation has the responsibility for the implementation of inter-local flood defence measures (i8aut). In this sense, the inter-local co-operation is the key developer of the implementation of catchment-management plan, for example the design contracts with farmers to purchase the necessary land or design contracts with construction companies.

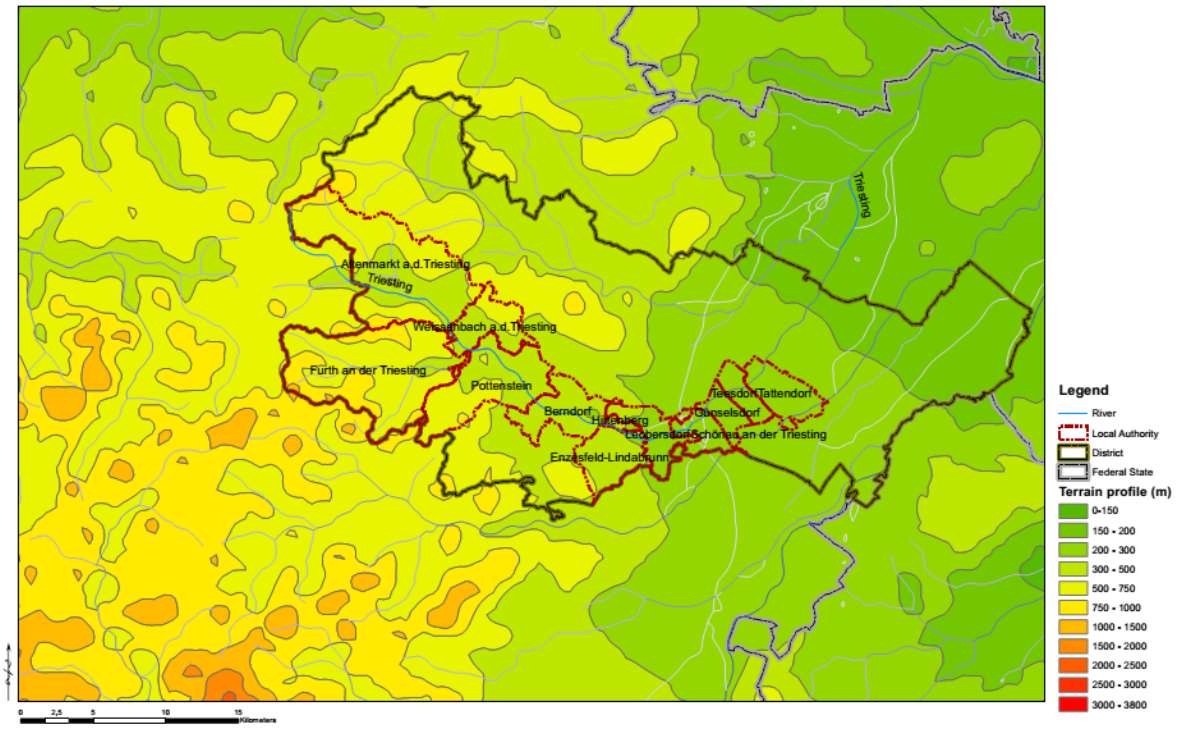

Figure 4.5: Overview of Triesting-Tal study site

Source: own development; © Lebensministerium (2007)

The River Triesting has a length of 43.63 km and includes in total 18 communities. The catchment is located in the Federal State of Lower Austria close to the Austrian city capital Vienna (approximately 45 km). The recent flood frequency and history shows various numbers of flood events in the past 20 years, especially in the years 1991, 1997 and 2002 (i4aut). Competence authorities regarding flood control measures are Austrian Service for Torrent and Avalanche Control (WLV) – responsible in the upper parts of the catchment (Altenmarkt an der Triesting and Furth an der Triesting) – and BWV – responsible for the lower parts of the catchment.

The Triesting-Tal inter-local co-operation includes a two-level structure (figure 4.6): (1) general assembly and (2) steering group with support of a director and as administration office, with total annual costs of 10,000 €. The assembly of members includes all members of the inter-local co-operation. In general, the steering group is responsible with the implementation of Triesting-Tal-regional study.

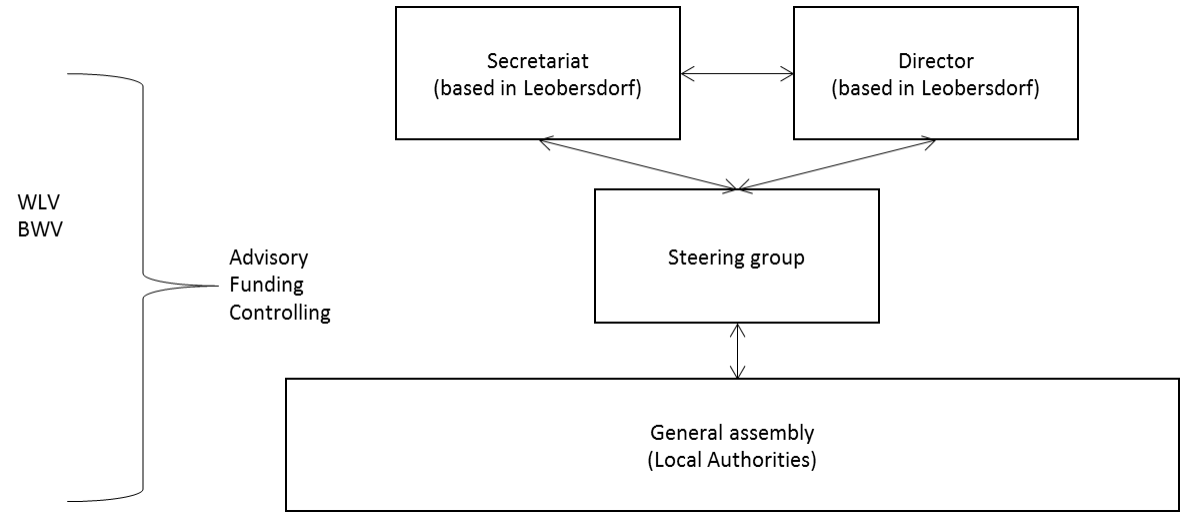

Figure 4.6: The organisational and structural set-up of the Triesting-Tal study site

Source: own development

An important aspect is for consideration the financial contribution of each local authority towards inter-local flood alleviation schemes. The financing key was introduced based on two

components: (1) land use based on four classes (grassland, forests, agricultural areas and artificial surfaces) and (2) population.

The Triesting-Tal region shows a long tradition of structural flood defence measures. The key focus was the implementation of local – linear structural measures. After the recent flood history in 1991 and 1997, the main strategy was to repair linear defence measures. Following the change in leadership in the regional authorities and the use of new instruments, e.g. regional studies, the flood risk management strategy shifted towards a more holistic catchment approach. The new flood risk management strategy has included the implementation of inter-local flood defence measures, especially in the implementation of flood storages in the upstream communities to protect the overall catchment. Since 2000s the WLV has enforced the communities in the catchment to use flood storages and natural retention ponds and lakes to reduce the impact of future events. Analysing the catchment-management plan and local project appraisals, the Triesting region follows two main strategies. A first step is the implementation of local flood defence schemes, mainly in the downstream – industrial communities. Although the regional authorities support this decision, this project blocked the implementation process goal of the catchment management plans in the past. The second step includes the implementation of flood storages in the upstream areas. In 2006, the project team updated the study with the result of the implementation of five flood storages with an average dam height of 5 to 8 m in the middle and upper part of the catchment, including the implementation of 2.5 km linear flood defence measures. This doubled the total project costs. However, the communities showed no or only minor interest in the implementation of this catchment management plan. Most of the community are focussed on their individual flood defence schemes. Since 2009/2010 the co-operation got a fresh boost. In March 2012 the Triesting-Tal realised its first flood storage project in the upstream catchment area. Next steps included the construction of a further flood storage near to the community Altenmarkt an der Triesting. Although this project is co-funded by the Triesting-Tal, the effect

for the downstream communities is not given. This project was mainly done to encourage Altenmarkt an der Triesting to join the inter-local co-operation. Finally, the Triesting-Tal management plan has included semi-integrated flood risk management strategy. The key strategies have been the implementation of linear structural measures in the different communities as well as runoff reduction measures in the upstream catchment. Nevertheless, the Triesting-Tal flood risk management strategy has no inter-local post-flooding measures. Here, the inter-local co-operation has still gaps in the implementation process.

Aist (Austria)

The second area includes the River Aist in the Federal State Upper Austria (figure 4.7), where the study sites besides the co-operation between national, regional and local authorities (such as Triesting-Tal) includes also informal co-operations with public utility companies, such as regional road authorities. In August 2002, the River Aist flooded large rural and urban areas in the catchment, particularly affecting the downstream communities Schwertberg, Gutau, Tragwein and Pregarten. In this context, the national and regional authorities (WLV and BWV) were initiated to collaborate with the downstream communities to organize an inter-local co-operation. The objective was to build a co-operation under the Water Law of 1959. The initial plan included 29 communities from 2 different districts (Freistadt and Perg). In 2007, the regional inter-local co-operation Aist was established with 27 communities. However, two communities did not take part of the co-operation, because fear to lose the identification and self-governing independence and additional costs for the public budget (Wirth and Biwald 2006; Weichart, 2006). Key promoters were the two regional authorities (WLV and BWV) as well as the downstream communities, especially Schwertberg (in the initial phase) and Gutau (second phase).

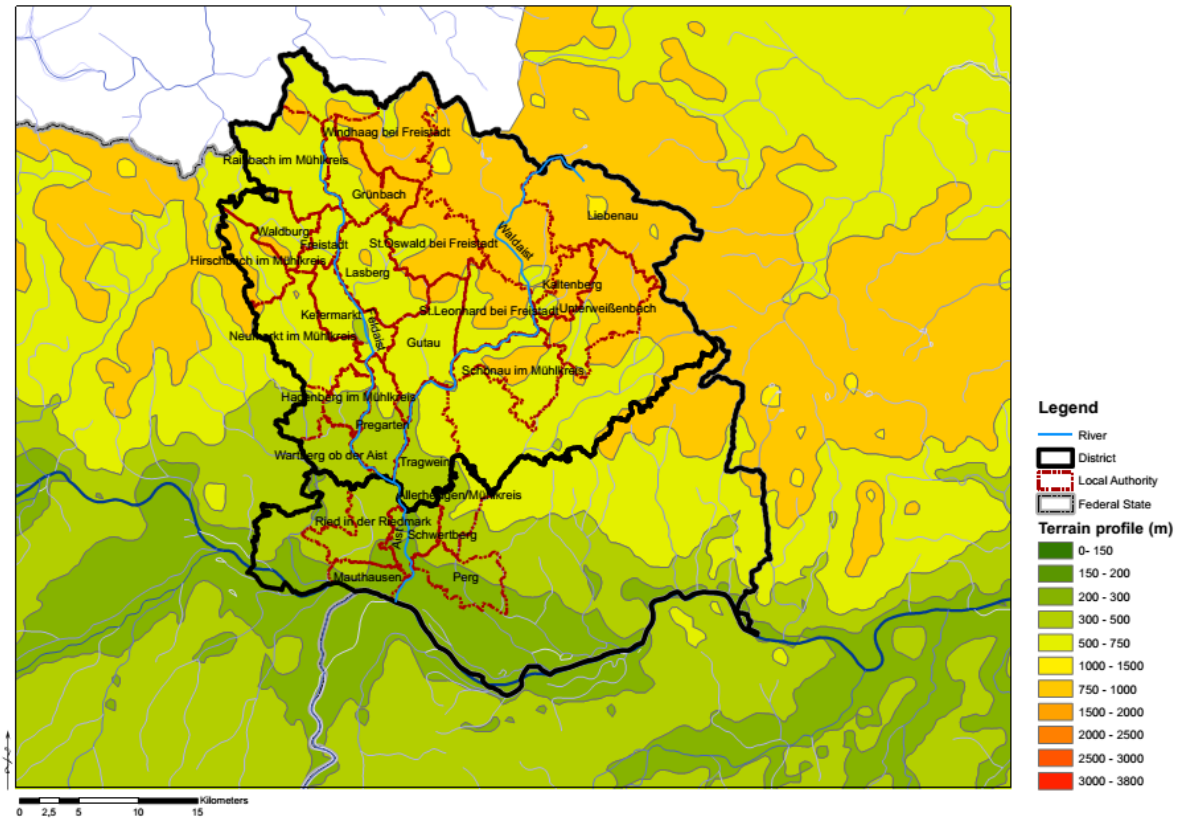

Figure 4.7: Overview of Aist study site

Source: own development; © Lebensministerium (2007)

The Aist inter-local co-operation includes a two-level structure: (1) the general assembly and (2) the steering group (similar to the Triesting-Tal; figure 4.8). Since May 2011, the Aist co-operation employed an external director to support the steering group (further information see section 6.3).

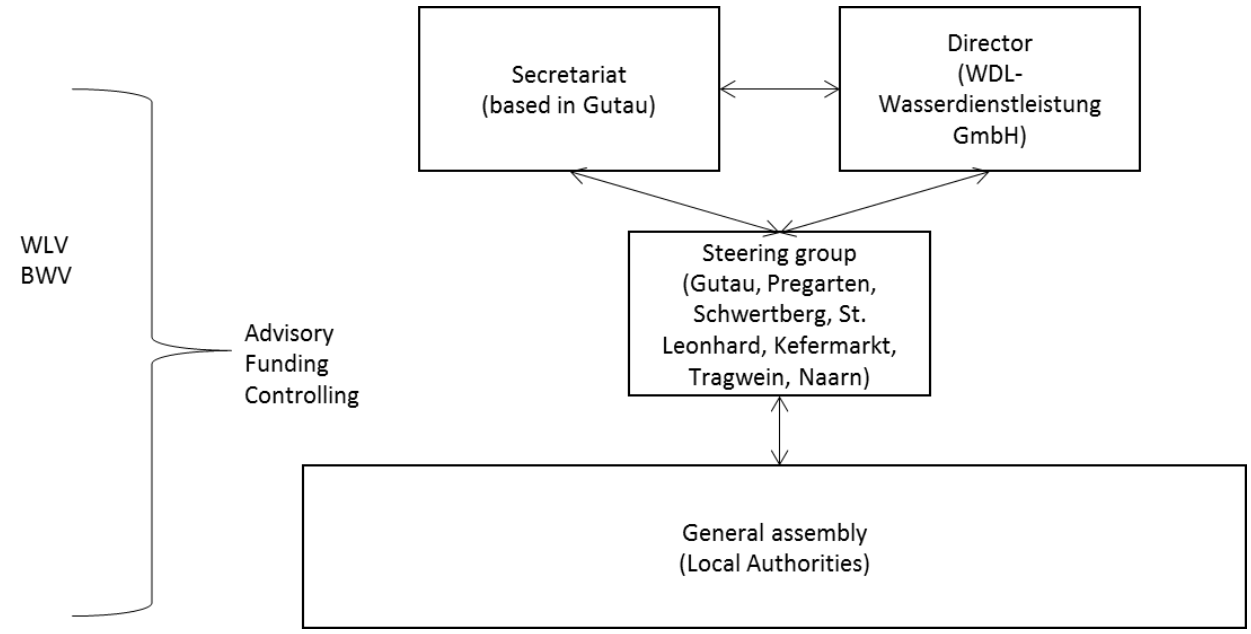

Figure 4.8: The organisational and structural set-up of the Aist study site

Source: own development

The financial contribution of each local authority shows a different calculation in comparison to the Triesting-Tal, which is distinguished between five components: (1) land use, (2) flood damages in 2002, (3) potential future flood damages, (4) retention capacity and (5) financial capacity.

The Aist catchment, in contrast to the other two study sites, shows a low degree of river regulation. After the flood event of 2002, WLV and BWV as well as local councillors started a draft management plan for the catchment. The stakeholders developed a catchment wide management plan. The strategy introduced a holistic view of the catchment with the key aspects of implementing flood storage and ensures natural retention areas to reduce the flood peak. The study includes a different range of runoff management schemes. The first step includes the implementation of local flood defence measures. Here, the communities are responsible for the implementation. However, the inter-local co-operation is paying the necessary partnership funding. The second step includes the implementation of flood storages in the catchment. The study identified 25 potential flood storage areas with a total retention

volume of ca. 7.5 million m³ (i12aut). This includes a reduction of the peak flow 350 m^3s^{-1} to 240m^3s^{-1}. The total costs are estimated with 30 million Euros (4 Euros per m^3 retention). However, the greatest benefits will impact the downstream community Schwertberg with a total reduction of the peak discharge of 109 m^3s^{-1} (Puchinger and Henle, 2007). The timeframe is designed for the next 30 years. Further measures refer to the implementation of forestry management concept. The Aist catchment is characterised by more than 68% of the forests are stocked with spruces. In 2002 flood event, a large number of debris jams was caused by spruces. Moreover, the overall goal is to restore the forest close to the river banks by planting flood proofed trees.

Ill-Walgau (Austria)

The third fieldwork area is in the western part of Austria in Ill-Walgau (figure 4.9), where also private companies are formally involved in the inter-local co-operation. In the early 2000s, the BWV started to develop a river development plan for the Ill-catchment (i20aut). Based on the first results, the BWV developed hazard maps to identify the 'hot spots' in the catchment. After the flood event in 2005 and results from river development plan and hazard maps, the BWV started to build an inter-local co-operation along the Ill-Walgau sub-catchment. In the sub-catchment of Ill-Walgau, there exists a long tradition of inter-local co-operation in respect to the water management (i17aut). In 2010 the regional inter-local co-operation Ill-Walgau was established with 20 members, among them 12 communities, three infrastructure operator (Highway Road Authority (Asfinag), National Rail Way (ÖBB) and Regional Road Authority (Landesstraßen)) and five utility operators. This co-operation is a result of the integration of formal inter-local co-operation (Bludenz, Bürs and Nüziders) in the upstream area, the informal inter-local co-operation (Satteins, Schlins, Frastanz, Nenzing and Asfinag) as well as other members, like utility providers, ÖBB or Feldkirch (i19aut; i18aut). The strategy identified two key concepts: implementation of the WFD and on increasing the flood protection in the sub-catchment (i20aut).

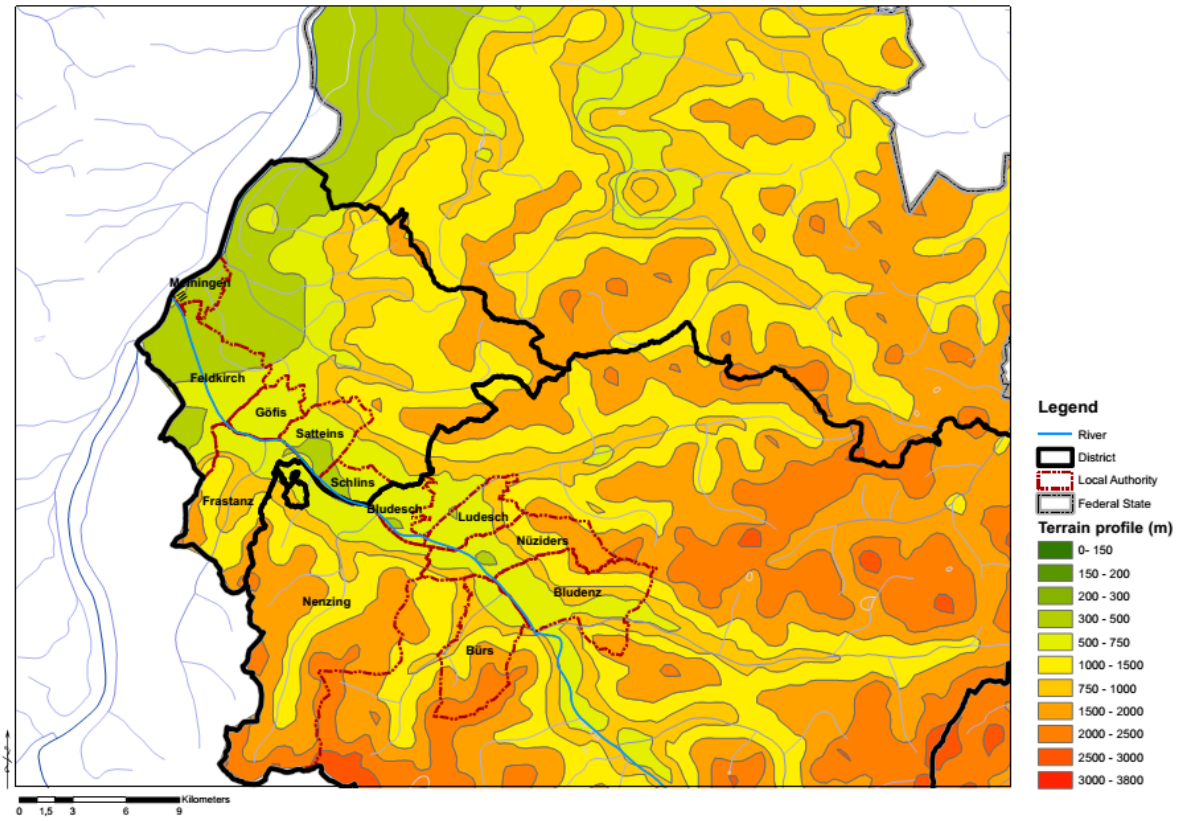

Figure 4.9: Overview of Ill-Walgau study site

Source: own development; © Lebensministerium (2007)

The Ill-Walgau inter-local co-operation includes a two-level structure (figure 4.10): firstly a general assembly and secondly a steering group. Furthermore, at operational level eight employees are responsible for the implementation, future maintenance and administration tasks (i18aut).

The general assembly of members is the highest board in the association. It includes all members of the inter-local co-operation. Usually they hold two meetings per year. Further, the key aim is to exchange information between the different members, discuss the general strategy and discuss general questions (i18aut). The second level (steering group) includes a selection of 7 members (3 permanent members and 4 elected members). The steering group includes a mix of small and large members, based on the contribution. The community Feldkirch, Asfinag and utility operator VIW-Walgau are permanent members of the steering group, because they are the main contributor (i19aut; i16aut).

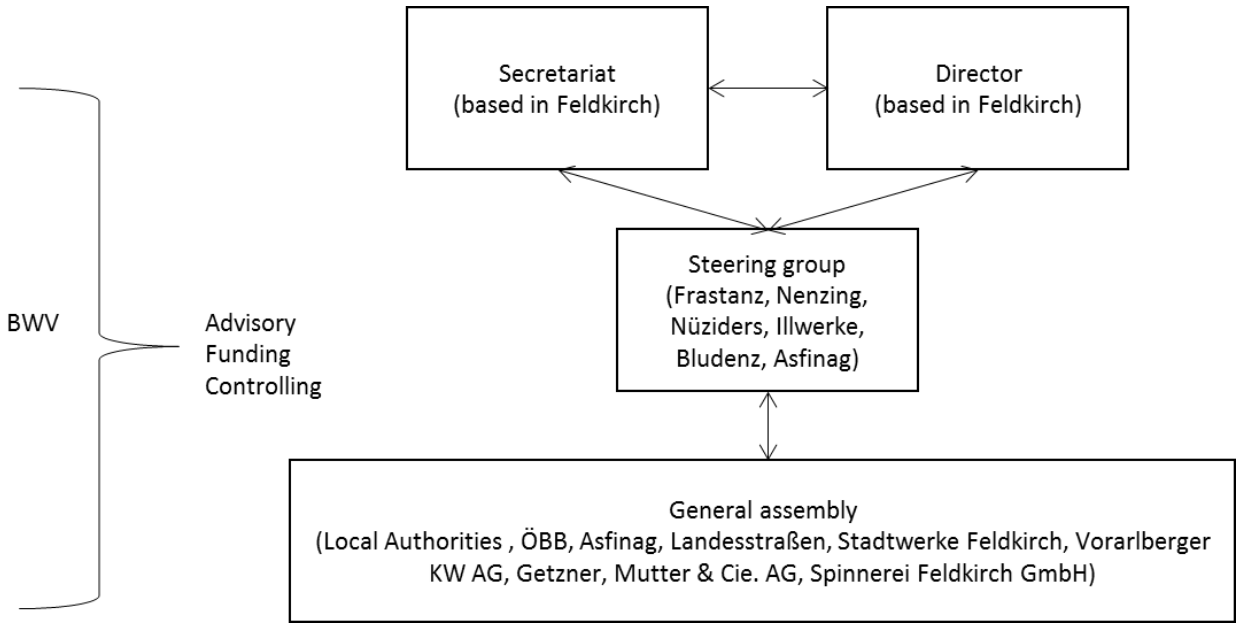

Figure 4.10: The organisational and structural set-up in Ill-Walgau study site

Source: own development

The level of contribution by each individual member distinguished between local authorities, operators of infrastructure and utility plant operators (i31aut).

- Local authorities are based on: (1) riverbank length, (2) discharge and (3) retention volume.
- Operators of infrastructure are based on: (1) flood traffic route, (2) embankment on the boundary area of a floodplain and (3) bridges across the river Ill.
- Utility plant operators: (1) influenced river stretch, (2) operating water volume and (3) upsurge (increased by 1.5).

The Ill-Walgau catchment shows a long tradition of regulation of the river. Since the 1820s, the various communities close to the river changed the river flows for agricultural and industrial purposes. The key objectives were economic growth and wealth. In the past 20 years, the Federal Water Engineering Administration in co-operation with the local authorities started to implement various flood protection measures alongside the river. After the recent flood experiences, especially the 2005 flood event, and the implementation of WFD and EU-Floods

Directive into the Austrian legislation, a change in flood risk management policy has occurred. Furthermore, especially the downstream communities, e.g. Feldkirch, increased further pressure to reduce the flood peak in the lower part of the catchment. In addition, since the 1990s, the Ministry for Environment has introduced river development schemes to achieve a more holistic view of the catchments.

The river development schemes include three key objectives. The first objective refers to the implementation of the WFD. The programme of measures includes various steps to increase the 'river continuity' to achieve the ecological requirements from the directive. Additionally, the river development schemes include the objective to increase the fish passability in the catchment. A second objective is expected to increase the biodiversity in the catchment, e.g. re-naturation of the river banks. The regional authorities, for example, created wetland areas in the community Göfis with the key objectives to increase the biodiversity and to reduce the flood peak for the neighbourhood communities. The third objective refers to the implementation of flood storages in the catchment to reduce the flood peak in the catchment. The river development scheme includes the implementation of five flood storages in the catchment. The first project includes the communities Bludenz and Gais with four flood storages with a total volume of 600,000 m^3. The second project includes the communities Frastanz, Nenzing, Schlins and Satteins with a total volume of 1.2 million m^3 (i46aut). In summary, the Ill-Walgau river development schemes shows mainly measures referred to the implementation of the WFD with the goal to achieve multiple benefits (Posthumus and Morris, 2007). The co-operation (similar to the other two examples) is the official client to build the flood storages. Additionally, the inter-local co-operation is the key communication partner for the different regional and national authorities. The implementation of flood storage is planned mostly on farmland. The flood storage schemes include an agreement on purchasing the necessary land to build the embankment as well as compensation mechanisms are needed (similar results found in England (Morris et al., 2004)). In addition, the inter-local co-operation

is responsible for future maintain once on inter-local flood defence schemes. However, each community is responsible for the local-linear flood defence schemes.

4.2.5. The English flood legislation framework

A first arrangement was introduced with the report by the Royal Commission on Land Drainage in England and Wales in 1927. This document and the following Land Drainage Act from 1930 re-designed the English funding scheme (Royal Commission, 1927). The key aim of the Land Drainage Act (1930) was to secure food production in England as a response to the World War One (WWI) and early 1920s and not caused by a major flood event (ibid.). The act includes three main directions: (1) creation of 46 Catchment Boards (summarised to the EA in 1995 with the Environment Act 1995), (2) transfer the permissive powers to the IDBs for non-major rivers as well as to drain the area and (3) introduced a new funding scheme and ended the 'old' beneficiary to pay principle (Scrase and Sheate, 2005). Today, the EA is responsible for the operational implementation of the policy guidelines and directions defined by Defra. The key tasks of the EA are:

- regulatory role,
- strategic overview,
- permissive power,
- advisory power and
- manage incidents (i30eng).

Firstly, the EA has the role as a regulatory body in the field of water protection. Here, the key tasks are to fulfil the requested requirements from the WFD in England, e.g. the protection from pollution and abstraction. Secondly, the EA has the role to provide a strategic overview of the flood risk management in England. The Flood and Water Management Act (2010) defined the role of the EA as: 'agency shall in relation to England and Wales exercise a general supervision over all matters relating to flood and coastal erosion risk management' (UK Legislation, 2010: 51). The EA supports and supervises other organisations, such as the Lead

Local Flood Authorities (LLFA), Water companies, Internal Drainage Boards (IDB) or Highway Road Authorities, to assess and organise the flood risk for which the organisation is responsible. Thirdly, the EA has the permissive power to manage flood risks from the main rivers[19] and sea. This includes that the EA can develop flood defence schemes to protect residential, non-residential properties and agricultural areas (i30eng). Therefore, the EA is also a key actor in the distribution of the national funding scheme (Flood and coastal erosion risk management Grant in Aid (FDGiA)). Besides, the Regional Flood and Coastal Committee (RFCC), successor of the Regional Flood Defence Committees (RFDCs), plays an important role in the overall flood risk management process. The RFCC was created under the Environment Act from 1995 with the key objective to work in co-operation with the EA to define the regional flood risk management policies (Brown and Damery, 2002). The acts provide the RFCC the power in raising additionally funds (local levy[20]) and for approving the regional flood defence programs. Also the Flood and Water Management Act (2010) under Article 23 (1a) underlines the co-operation between the EA and the RFCC. The Act says that the EA 'must – (a) consult each Regional Flood and Coastal Committee about the way in which the Agency proposes to carry out its flood and coastal erosion risk management functions in relation to the Committee's region' (UK Legislation, 2010: 15). Furthermore, the Act underlines the permission from the RFCC to take any further measures in the area. The act states that the EA 'may not implement the regional programme without the consent of the Regional Flood and Coastal Committee for the region concerned' (UK Legislation, 2010: 15). Additionally, the EA has responsibility for flood assets and is required to maintain and operate schemes (i38eng). In contrast to the Austrian flood risk management system; the local authorities are responsible for the maintenance. This includes a much stronger role of the local authorities to engage in flood risk

[19] Local authorities are responsible for non-main rivers; these are: small, local, urban rivers (Parker and Derrick Sewell, 1988).

[20] The local levy is based on the council tax. The expenses are based on the number of local authorities in RFCC area (UK Legislation, 2011) – see also section 5.5.

management. The consequences is that the Austrian local authorities have a more active role in flood risk management policy, whereas in England the central Government might be considered to patronize the local authorities in terms of decision-making practices. Fourthly, under the planning policy framework, the EA has an advisory rather than an executive role in the local spatial and land use management planning process. Lastly, the EA plays a key role in flood incident management. Here, the EA is responsible for providing the flood warning across England and Wales as well as to resolve flood incidents, e.g. clearing channels etc. (i30eng). Within the Water Act from 1989 (UK Legislation, 1989), the public water industry was privatised, inclusive their infrastructure. This was a new stage in the privatisation of public water supply system (Thaler, 2010). Coulthard and Frostick (2010) observed that the Water Act (1989) increased the number of actors in the urban flood risk management policy. Both authors' showed that for the City of Hull three different organisations were responsible for the urban flood risk management. The City of Hull was mainly responsible for the roads and gully drainage, Yorkshire Water was responsible for the water supply and treatment system, and the National River Authorities (became the EA in 1996) responsible for the main river courses across the city. The Water Act (1989) increased the number of actors from one (the local authorities in the years between 1973 and 1989) to three different agents with different backgrounds: (1) Yorkshire Water (private business), (2) City of Hull (local actor) and (3) EA (quango and national actor). The outcomes were different management and maintenance systems and approaches as well as different interests, which ended in different outcomes (ibid.).

In addition, besides the already mentioned organisations, I found several other organisations dealing with flood risk management, such as the Highway Authorities, which are responsible for the flood defences and drainage of highways in England (UK Legislation, 1980). The Highways Act from 1980 – Article 102 (1) gives the Highway Authorities the responsibility to maintain and provide the protection of the highways against flood risks and other

environmental hazards. The defence measures can be close to the highways or also request land close to the highways. For coastal erosion management, key actors are the Maritime Local Authorities. These authorities mainly act under the Coastal Act 1949 and Flood and Water Management Act 2010. The Maritime Local Authorities have the permissive power to take further flood defence measures to protect the coastal area. This large number of different authorities caused several challenges and barriers in the past years, as noticed by the independent Review into the 2007 floods conducted by Sir Michel Pitt Review in 2008 (Pitt, 2008). One of the key aims of the Flood and Water Management Act (2010) has been to clarify the responsibility of each party, especially the role of the local authorities regarding flood risk management. In England, the EU Floods Directive (2007/60/EU) was implemented under the Flood Risk Regulations in 2009. The introduction of the EU-Floods Directive opens a new chapter in the flood risk discussion in England and Wales, especially regarding the 'new' relationship and role of the different actors under the national implementation of the EU Floods Directive (see overview table 4.9). The Flood Risk Regulations (UK Legislation, 2009) provide new definition of who is responsible for what. In particular, the LLFA has become more prominent in the flood risk management system, because these organisations are responsible for surface runoff management. Main differences to the Flood and Water Management Act 2010 are other aspects, such as co-operation between the different organisations and topics, funding, define the role of RFCC. In regard to flood risk governance, the Flood and Water Management Act has more influence, because it circumscribes more broadly the actors and social processes in English flood risk management.

Table 4.9: Overview the role of the EA and LLFA under the Flood Risk Regulations 2009

EU Floods Directive	The Flood Risk Regulations 2009	
	LLFAs	**EA**
Step 1: Preliminary flood risk assessment	• Preliminary assessment report in relation to risk of flooding in LLFA area; not required source of flooding which are under the responsibility of the EA • Can reject the recommendations from the EA which returns to Defra • Review preliminary flood risk assessment report every six years, first time by 22nd June 2017	• Preliminary flood risk assessment report and map for the following source of flooding: (1) sea, (2) main rivers and (3) reservoirs • Supervises, reviews and provides recommendations to LLFA • Provides guidance document for the LLFA • Reviews preliminary flood risk assessment every six years, first time by 22nd June 2017
Step 2: Flood hazard and risk maps	• Provide flood hazard and risk maps in relation to risk of flooding in LLFA area; not required source of flooding which are under the responsibility of the EA • Can reject the recommendations from the EA • Review flood hazards and risk maps every six years, first time by 22nd June 2019	• Provides risk and hazard maps, which shows the risk of flooding from (1) sea, (2) main rivers and (3) reservoirs • Supervises, reviews and provides recommendations to LLFA • Provides guidance document for the LLFA • Co-ordinates with WFD-requirements • Reviews flood hazards and risk maps every six years, first time by 22nd June 2019
Step 3: Flood risk management plans	• Provide flood risk management plans in relation to risk of flooding in LLFA area; not required source of flooding which are under the responsibility of the EA • Can reject the recommendations from the EA • Participation with all relevant stakeholders and public • Review flood hazards and risk maps every six years, first time by 22nd June 2021	• Provides flood risk management plans for following source of flooding: (1) sea, (2) main rivers and (3) reservoirs • Supervises, reviews and provides recommendations to LLFA • Provides guidance document for the LLFA • Participation with all relevant stakeholders and public • Reviews flood hazards and risk maps every six years, first time by 22nd June 2021

Source: UK Legislation, 2009

In overall, the LLFA has become a more important role in the English flood risk management system, but at the moment it is quite early to be analysing these groups in the organising and implementation process. Nevertheless, the EA has a key role in the ongoing discussions on ordinary water courses. The EA provides guidelines and monitors the implementation process of the LLFA.

4.2.6. English organisational structure in flood risk management

The flood risk management system in England includes a wide range of different legislations and 'primary' stakeholders as well as 'secondary' stakeholders (figure 4.11). At the English national level, the key actors are the Department of Environment, Food and Rural Affairs (Defra) and the Environment Agency (EA). Defra is responsible for the definition of the policy directions in England.

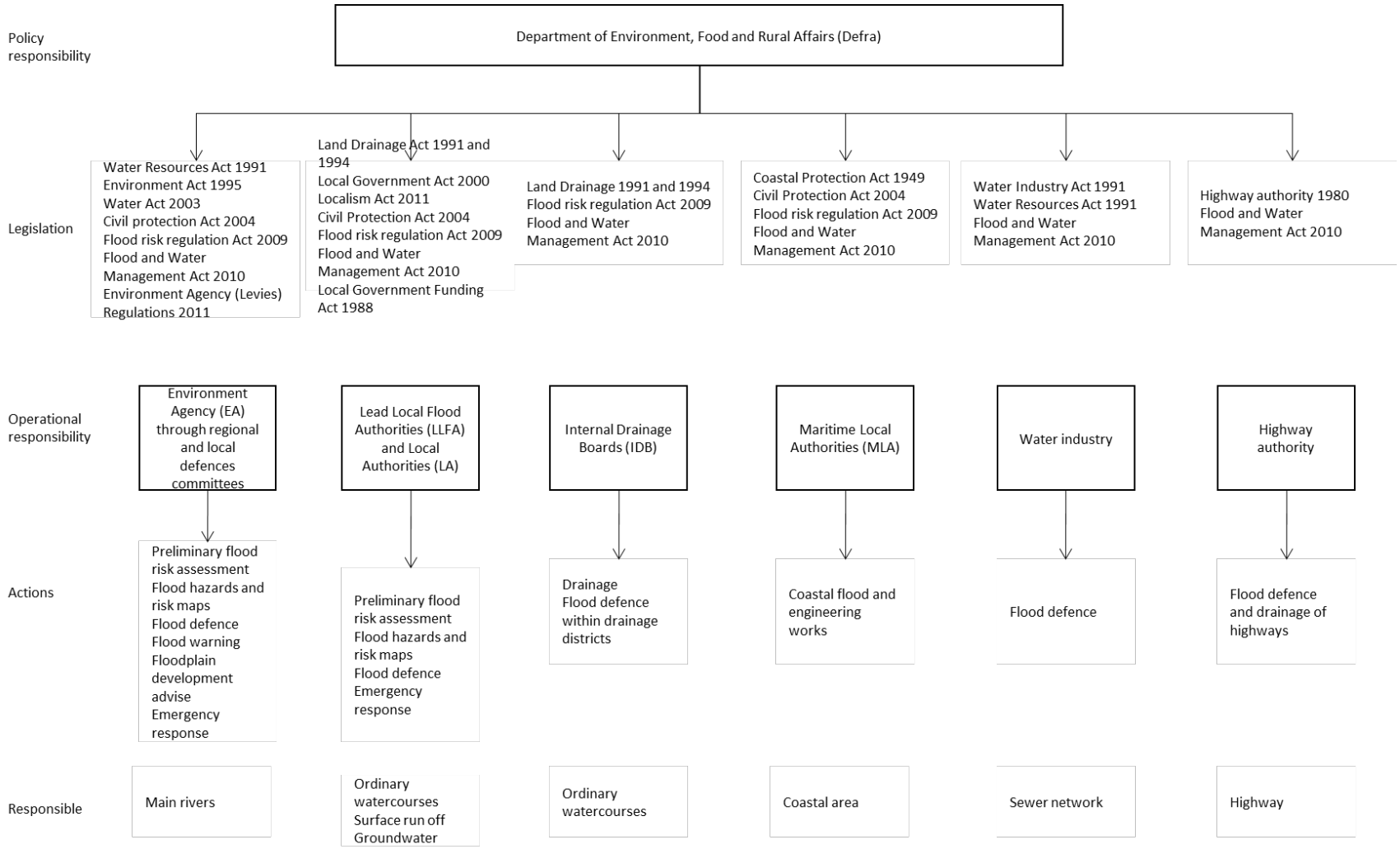

Figure 4.11: Policy responsibility and law structure in English flood risk management system

Source: own development based on Brown and Damery, 2002; MAFF, 1993

The LLFAs, Internal Drainage Boards (IDB), Water industry and Highway Road Authorities are generally responsible for the ordinary water courses for pre-defined areas, such as Highway Road Authorities are responsible for flood defences and drainage of highways. The management of flooding shows little co-ordination and co-operation between the different operational actors. In urban areas, for example, the English flood risk management system includes three main actors:

- Water industry: responsible for water supply, sewage and treatment
- Local authorities: responsible for road and gully drainage and
- EA: responsible for main river management (Coulthard and Frostick, 2010).

The consequences with the increase of actors (in the past 40 years) in management and governance system are the problem of co-ordination and adjustment between the different management systems. In the urban areas there was the lack of a 'lead' organisation with the consequences of no co-ordination, adjustment and knowledge transfer between the organisations with the outcome of different management and maintenance system and practices or lack of information, because nobody was responsible to provide further information, such as providing a incorporated map of the river connection, land drainage and sewer network (ibid.). Further, the flood risk management system had no clear division of responsibility in pluvial flooding until the Flood Risk Regulations and Flood and Water Management Act 2010 came into force. Coulthard and Frostick (2010) demonstrated the main barriers and negative consequences for the English flood risk management system based on unclear responsibilities and lack of co-operation with the help of the City of Hull. Nevertheless, the Flood and Water Management Act encourages a stronger co-operation between the different actors (UK Legislation, 2010).

The LLFAs were introduced as recommendations of lessons learned from the summer floods 2007 (Pitt, 2008). One of the key recommendations was to empower the local level to deal with local problems. The summer flood in 2007 may be considered to be a 'non-classical' English flood event, because the classical floodplain areas, e.g. Severn or Trent, were not affected, also because of the

high protection standard in both rivers. The main damages were caused by pluvial flooding in localised hot spots (Pitt, 2008; Chatterton et al., 2010). The LLFAs are responsible for all sources from flooding from ordinary water courses, especially for the surface runoff and the groundwater flooding, but outside the Internal Drainage Boards areas. The LLFAs have the permissive power to undertake flood defence measures for their framework. They are responsible for the management of the risk of surface runoff, of groundwater and of ordinary water courses (UK Legislation, 2010). The key points for this change was the awareness and recognition of the surface run-off problematic from the experiences of the summer floods of 2007 (i33eng) as well as the requirement from the EU Floods Directive Article 2 (1), which includes a large number of different types of flooding, e.g. groundwater and urban flooding (EC, 2007).

4.2.7. New partnership funding scheme in English flood risk management system

The role of the different actors in flood risk management has changed over the time, especially in relation to who should contribute to funding to the flood risk management system. It has been a discussion between public actors (nationally and locally) or between public and private actors (businesses and/or individuals) (Scrase and Sheate, 2005). In general, the English funding system for flood risk management can be divided in five key time periods (table 4.10).

Table 4.10: Key phases in English flood risk funding scheme

Year	Prime Minister and political party	Policy-legislation	Short description
1930	James Ramsay MacDonald (Labour Party)	Land Drainage Act 1930	Regional and local focus
1998	John Major (Conservative Party)	Priority scoring	Focus on urban areas; prioritisation of flood and coastal erosion risk management
2004	Tony Blair (Labour Party)	Centralised funding	Shift in the funding decision from local towards national; prioritisation based on priority scoring
2008	Tony Blair (Labour Party)	Payment for outcomes	Change of the prioritisation system; holistic view of flood and coastal erosion risk management; including social justice aspects in the decision-making practices; dominant national funding
2011	David Cameron (Conservative Party)	Partnership funding	National and third party funding

Source: own development

Land Drainage Act 1930

With the Land Drainage Act[21] from 1930 (following the Royal Commission report 1927), the new funding scheme shifted away from the beneficiaries pays principle (landowners) to a broader definition of contributors (nationally wide) to ensure the necessary flood alleviation schemes for food safety. The government introduced 'a complex system of rating and levies between the drainage authorities' (Scrase and Sheate, 2005: 115). The funding was divided between national, regional and local grants and levies (O'Riordan, 1980). It included a strong local and regional focus, where the national government closed the funding gap. The outcome was a strong local oriented flood risk management policy, because of the strong agricultural interests, such as focus on food security, where farmers were highly subsided by the national Government (O'Riordan, 1980; Escobar and Demeritt, 2014). The policy of flood risk management was mainly oriented to the administration boundaries, such as local authorities or water authorities, with the results of a complex system of

[21] Originally the act covered all aspects of flood risk management, such as agricultural drainage, coastal defence or tidal flooding (O'Riordan, 1980).

flood risk management strategies with the outcome of un-coordinated and inappropriate flood protection schemes within the country (Parker and Sewell, 1988; Petit, 1999).

Since the 1960s, the English governments restructured and incrementally changed the water and flood risk management policy various times (Parker and Sewell, 1988). Key steps in this process included the Water Resources Acts from 1963, 1973, 1983 and 1989 as well as the government Green Paper in 1984, where the key purpose was to centralise the water and flood risk management system (Petit, 1999; Thaler, 2010; Scrase and Sheate, 2005). With the Water Resource Act from 1973, the national Government centralised the water management system with the introduction of the Regional Water Authorities (RWA) (Parker and Sewell, 1988; Thaler, 2010). The RWA became responsible for sea and tidal flood risk management, but under control and close co-operation with the Regional and Local Drainage Committees (Petit, 1999). The local land drainage organisations kept their position and responsibilities in flood risk management. Main reason was the strong lobbying efforts at national level with the result of the implementation of the Land Drainage Act from 1976 (Parker and Sewell, 1988; Petit, 1999; O'Riorden, 1980). Based on the socio-political and economic changes in the 1970s and 1980s, such as the intervention by the International Monetary Fund in 1976, growing interests and interaction of environmental grassroots organisations at national level or shift from Keynesianism to Neoliberal economic policy under Conservative Government as well as the change in the food supply system (move from food shortage to overproduction), the local level lost slowly their status and power in flood risk management (O'Riorden, 1980; Escobar and Demeritt, 2014; Ballinger, 1999).

Priority scoring

In April 1998, a new priority scoring system was introduced, mainly in response to the general centralisation process of the flood risk management system. First proposals initially only included the inland rivers across England and Wales. The second centralisation step occurred in 2006, when the EA received the responsibility for using the priority scoring scheme also for coastal flood

protection. 'The Environment Agency (EA) was given responsibility for allocating funds direct to local authorities for coastal protection schemes, meaning the EA could objectively appraise, prioritise and allocate funds to flood and coastal erosion risk management activity across England in line with where greatest benefit could be achieved with the funding available' (Defra, 2010b: 9).

Therefore, the new funding system replaced the strong focus on local funding schemes in the flood risk management system. Due to the centralisation of the funding scheme, the key objective of the priority scoring system was to create a consistent national-wide criteria methodology (i47eng). The consequences were the implementation of a strong hierarchical top-down management system, where the local level had little influence in the decision-making practices. The effect was a political incapacitation of the local actors, stakeholders and citizens. The main reasons for the new funding scheme was the reduction of the problem of charity hazards in the country, because of the methodology (based on quantitative data and unique for the whole country), to simplify the administration process in the flood defence funding and to provide a national-wide flood protection standard (i47eng). The applied system ranked the different capital projects based on their benefits (EA, 2008; House of Commons, 1998). Moreover, the priority scoring provides a method to justify the public money spent in flood defence schemes, because the national funding was insufficient to realise all requested flood defence schemes (Johnson et al., 2007).

In this line, the priority scoring followed two main tasks. First, the scoring had to identify, if the project can be realised with the current national funds, especially to ensure the realisation of projects with highest benefits. Second, the priority scoring system was to guarantee an effective use of public money in flood risk management (i29eng). Due to this system, the selections of flood defence schemes were based on a more technical-objective understanding instead of a political understanding, similar to the political and public pressure in Germany after the 2002-Elbe flood event (Schwarze and Wagner, 2007). In this way, the priority scoring ranked the different projects based on economic, social and environmental factors and focussed strongly on businesses

protection (max. 20 from 44 points). The consequences were that areas with few business activities were discriminated against economic centres, such as urban areas instead of rural communities with low economic growth. This led to highly unequal flood defence development in the country in privilege 'wealthy' – international competitive communities (i31eng). The main funding sources for flood risk management came from the local authorities. The local authorities contributed in the years 1996 to 2004 approximately 66% to 78% of the total budget for flood defence schemes[22] (figure 4.12). The consequences were that the decision process was strongly oriented towards a local-regional decision process.

Centralised funding

After the financial year (2004-05), the contribution process totally changed towards a national system of spending with less local control and influence (i47eng; i48eng). This remains to today; approximately 95% of the funding for flood risk management is provided by the central Government (Defra, 2010b). An analysis of the public funding for flood and coastal risk management showed that the public authorities increased their overall funding especially within the larger nationalisation of the funding.

[22] The flood risk management funding is generated mainly on national and local taxation. However, decisions were based on local – regional scale how to spend the budget for flood risk management.

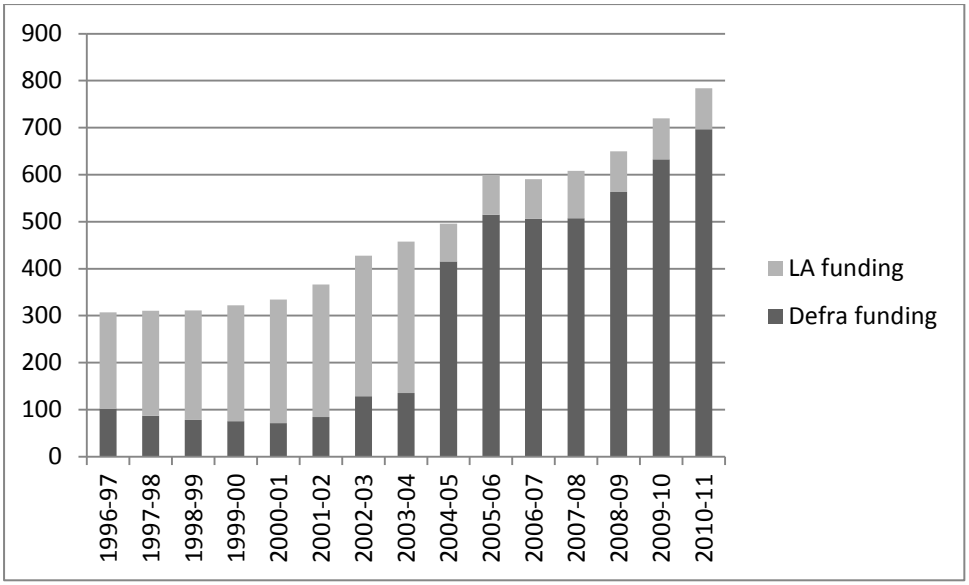

Figure 4.12: National and local flood defence funding in England and Wales, 1996-2011

Source: House of Commons (2009)

Outcome measures

The New Labour government re-defined significantly the flood policy and funding in England partly re-designing the funding scheme alongside the introduction of the integrated-holistic view of flood risk management (Defra, 2005). The new government and the introduction of an holistic view approach (Making Space for Water), Defra replaced the priority scoring system with the outcome measure (OM) approach for prioritising flood defence projects (Johnson and Penning-Rowsell, 2010; EA, 2008). Furthermore, key drivers for this change were the introduction of the WFD in 2000 (EC, 2000) as well as the New Labour Third Way ideology (MacLeavy, 2007).

The main reasons for the introduction of a new approach stemmed from the various criticisms of the priority scoring system. A first critique referred to the strong focus on the economic factors and a lesser importance being given to the other two factors; people and environment. In the Priority scoring the selection scheme excluded the aspect of social justice in flood risk management (House of Commons, 2008), on which New Labour Party focussed its policy discussion (Colomb, 2007; MacLeavy, 2007). A second key critique referred to the strong focus towards wealthy-urban areas, also in cases where flood defence schemes in rural areas were economically feasible (ICE, 2008;

House of Commons, 2008). In addition, a third aspect of the change was that the priority score scheme prioritised the projects within its given limited available funding (national investment programme for 2008 to 2011). It produced smaller forecast contributions towards the new targets than a proposed new system based on OMs (i48eng).

The OM approach introduced four elements (1 April 2011 onwards – see also table 4.11) for ranking the project proposals (Defra, 2007). A key change was the introduction of the aspects of social justice into the final decision process. In doing so, the Government gave a higher weight to deprived areas across the country and these areas were seen by central Government as being more worthy to receive funding for flood management measures. Consequently, the payment rates were higher for deprived households. However, the Government distinguished between three different payment rates depending on the number of deprived households in the area. Furthermore, the Government excluded private businesses and infrastructure operators in the calculation, which had to manage their risk by themselves (i29eng). Here we observed a strong shift from an economic priority more towards the focus on people. A further change included the introduction of OM4, which focussed on to the requested requirements from the WFD – the renaturation of the rivers.

Table 4.11: Outcome measures scheme in England and Wales

OM	Definition	Payment rate
OM1	Average benefit to cost ratio of schemes delivering OMs	5.56 p per £1 of qualifying benefit
OM2	Households* 'better'** protected against flood risk present value of the reduction in direct damages to residential properties: -in the 20% most deprived areas -in the 21-40% most deprived areas -in the 60% least deprived areas	 45p per £1 30p per £1 20p per £1
OM3	Households* 'better'** protected against coastal erosion, present value of the reduction in direct damages to residential properties: -in the 20% most deprived areas -in the 21-40% most deprived areas -in the 60% least deprived areas	 45p per £1 30p per £1 20p per £1
OM4	Statutory environmental obligations met:	
OM4a	Hectares of water-dependent habitat created or improved	£15,000 per ha
OM4b	Hectares of inter-tidal habitat created	£50,000 per ha
OM4c	Kilometres of protected river improved	£80,000 per ha

*Households must be at direct risk of damage from flood damage or coastal erosion and have been build or converted into housing before January 2012 to be counted (flood damages) or qualified (coastal erosion).

**change in the risk category (very significant risk, significant risk, moderate risk and low risk)

Source: EA (2012)a and Defra (2011)

The OM approach introduced a new methodology for the decision making process (Johnson and Penning-Rowsell, 2010). The calculation of the OM was based on the sum of each OM divided by the present value of the total life costs (PV WLC) or the costs for approval of the asset (EA, 2012a):

$$FDGiA = Qualifying\ benefits\ under\ OM1 * payment\ rate + Qualifying\ benefits\ under\ OM2\ for\ each\ level\ od\ deprived * relevant\ payment\ rate + Qualifiying\ benefits\ under\ OM3\ for\ each\ level\ of\ deprivation * relevant\ payment\ rates + Payment\ made\ under\ OM4$$

and

$$Raw\ score = FDGiA\ contribtuion \div PV\ WLC\ or\ costs\ for\ approval$$

However, the OM approach strongly focuses on the results from the CBA (similar to the priority scoring system) and thereby many of the limitations of this approach remained (Hanley and Spash, 1994). The outcome was that the OM approach led to changes in types of scheme funded. In

particular, OM favoured projects in areas with socio-economic problems, such as high deprivation. Nevertheless, the main limitations refer to the methodology to assess the benefits, such as intangible and indirect costs (Penning-Rowsell et al., 2005).

Partnership funding going back to the local

The latest step in the English flood risk management funding regime included the introduction of the partnership funding scheme in April 2011 (Defra, 2012). There were multiple drivers for change and a move back towards locally-based flood risk management. Key factors included the results from the EA study *Investing for the Future* published in 2009 (EA, 2009a) and the recommendations from the Pitt Review (Pitt, 2008). The former study recognised the need of an increase of the annual budget of approximately £20 million, exclusive of the annual rate of inflation (EA, 2009a). However, based on the Government spending review (October 2010) and with the result of the current pressure on public spending and resources, the central Government reduced the public national funding in the following years (figure 4.13). The spending review foresaw a reduction of the capital works from £354 million (2010-11) to £259 million (constant over the next spending review period) as well as the revenue funding (maintained work, emergency response, hazard and risk mapping and modelling) from £275 million (2010-11) to £226 million (2014-15).

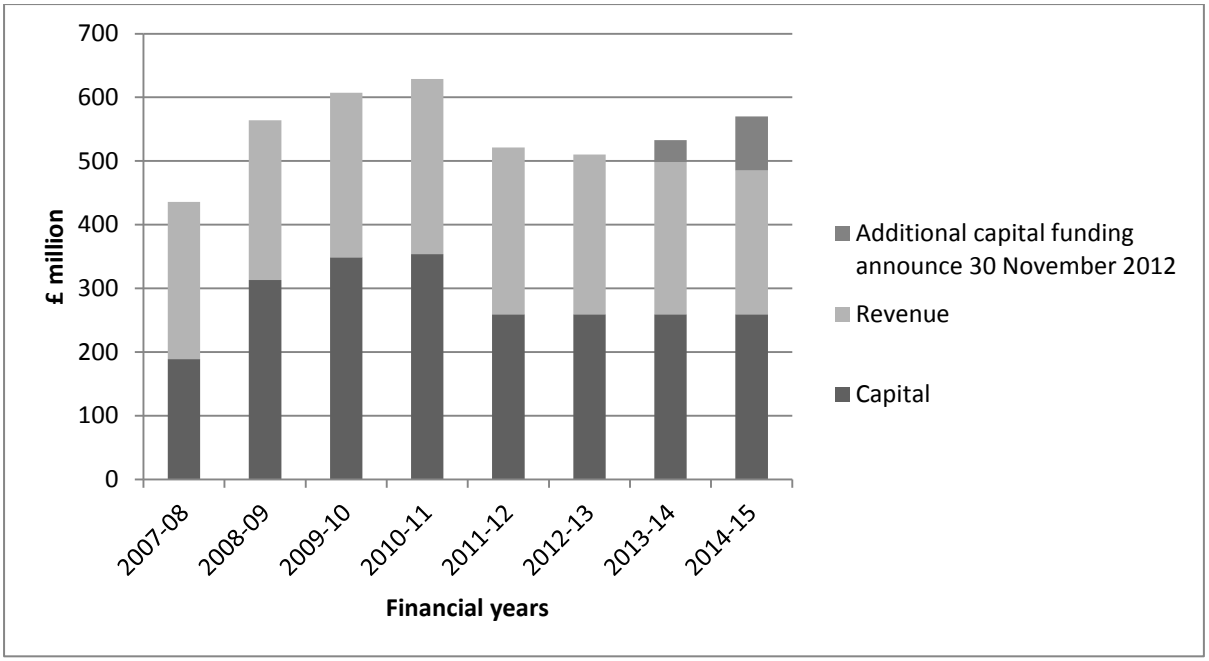

Figure 4.13: National Flood and Coastal Risk Management Grant-in-Aid Funding: 2007-08 to 2014-15

Source: House of Commons (2013b): 8

One reason for this budget reduction is the fiscal squeeze and state budget deficit. However, the Government (2012) announced that they would increase additional £120 million for new flood defence buildings in the next two years, with a key objective of economic growth (House of Commons, 2013a)[23]. The focus on economic growth shows a political step backwards towards the 1980s political ideology (Haughton et al., 2013), which refers to the question of the role of deprived and rural areas. The new direction however shows similar concerns that I found under the priority scoring (see text above). In sum, the new Coalition Government has taken over certain aspects from the New Labour policy. First, the Coalition Government includes the social justice discussion in flood risk management; for example, the partnership funding calculator included the outcome of measures calculation scheme. Second, the Coalition Government shows also some strong top-down direction, like the introduction of the new infrastructure levy and the level of national contribution (see also section 6.5). The discussion of a change of the national flood risk management funding regime to open it to third actors is not new (Sugden, 2004; Corkindale, 2007) with the shift to a

[23] The spending round 2013 foresees to increase the budget of flood defences to £370 million in 2015-16 (HM Treasury, 2013). However, the key argument lies with economic growth instead of sustainable development.

broader partnership-oriented governance arrangement (Allmendinger and Haughton, 2012). In the past years, caused by a lack of national funding, the EA tried to encourage private and local actors to contribute to the flood defence schemes (i37eng). Under the 'old' funding scheme, the national government normally provided approximately 95 to 100% to the flood defence scheme. The numbers vary widely depending on the contribution from the local levy or private actors, e.g. the £150,000 contribution from Tesco as well as small contribution from Carlisle City Council for Carlisle or the East Lane sea defences in Bawdsey, where private actors largely contributed to the overall defence project (i37eng; i31eng). The contribution from third parties was approximately £13 million in the period between 2008 and 2011 (i48eng); approximately £10 million from local authorities and approximately £3 million from private actors (CCC, 2012).

First, the Government gives the possibility to realise flood defence schemes, even if they do not match the necessary requirements of the 100% funding. Currently, approximately 75% of the projects are fully funded by the national Government; the other 25% of the projects need additional funding from other parties (i29eng). An important aspect of the 'new' funding regime is the possibility for third parties to contribute to close the funding gap, if the project satisfies the minimum criteria (the benefits of the project have to exceed the costs).

In general, partnership funding is based on the methodology of OMs calculation. In comparison to other European countries (such as Germany[24] or Austria[25]), there are no fixed percentages from the national Government (EA, 2013). In this example, the national Government contribute (financially) between 50% and 100%. Furthermore, the Government has adapted the weights in the methodology. The partnership funding approach (as compared to OM) has a higher weighting in favour of protecting people in risk areas within deprived areas, where they are least likely to be insured, less able to afford local protection measures and least likely to be able to recover following

[24] 50% Federal State and 50% Laender (Garrelts and Lange, 2011).

[25] For example in Carinthia: 40% national contribution, 40% regional contribution and 20% contribution from local authorities and private stakeholders and citizens (i24aut).

a flood event without additionally welfare support, such as Kingston Upon Hull (i29eng). However, partnership funding mainly focuses only on flood defence scheme aspects; where the EA and not other organisations are responsible.

Second, the Flood and Water Management Act (2010) re-designed the use of the local levy, which was understood as a supplement funding source after 2004. The Act foresaw the stronger role of local authorities in the current flood risk management discussion. In this line, the Act included a stronger localism approach also within the local levy. Under the new Act, the RFCC – which also represents local authorities within RFCC unit – could use the local levy as an additionally funding source. The allocation was strongly based on the national prioritisation format, or it was able to use it independently to promote locally preferred schemes (Devon County Council, 2012). The levy was in most cases based on the council tax (i36eng). The level of contribution requested the agreements of each member of the RFCC, because it was valid for everyone in the RFCC area. In general, the level of contribution between the different RFCC was widely different (table 4.12), because each RFCC defined the level of contribution individually.

Table 4.12: Local levy contributions by English RFCC

RFCC – name	2009-10	2010-11	2011-12
Anglian Central	971,958	1,020,556	1,020,556
Anglian Eastern	2,059,654	2,486,008	2,486,008
Anglian Northern	1,547,086	1,547,086	1,547,086
Northumbria	1,850,443	1,905,956	1,982,194
Yorkshire	1,127,750	1,500,000	1,500,000
North West	3,567,000	3,638,000	3,638,000
Southern	1,153,830	1,176,907	1,176,907
Severn Trent	3,075,000	3,000,000	3,000,000
South West	484,472	496,584	546,242
Wessex	3,090,155	3,167,409	3,167,409
Thames	10,000,000	10,000,000	10,000,000
Total	**28,927,348**	**29,938,506**	**30,064,402**

Source: Devon County Council (2012)

In sum, partnership funding has two main innovations in comparison to the OM funding approach. First, partnership funding prioritises stronger areas within deprived areas, because of long-term socio-economic effects (Rawls, 1972). Second, partnership funding encourages actors, stakeholders or citizen outside from the national Government to contribute (financial) towards new flood alleviation schemes. Nevertheless, the latest House of Commons review (2013) mentioned that the FDGiA still provides approximately 93% of the flood defence budget. These numbers show a very small contribution by local and non-state actors, stakeholders and citizens. Consequently, localism might be seen more as a rhetoric discussion, especially in the assumption that the level of contribution defines the level of participation in the final decision-making practices. A large contribution from national government includes a strong top-down policy. Similar developments can be observed with the new community infrastructure levy and implementation of EU Floods Directive in relation to surface runoff, where the national government dictated the policy and implementation process.

4.2.8. Selected study sites in England

From the English case study three different study sides has been selected (figure 4.14) with different forms of partnership funding to analyse and to understand the influence of new politics of scale.

Figure 4.14: Overview English study sides

Source: own development; © EA (2009)b; © Edina Digimap Ordinance Survey Service (2012)

Cockermouth (England)

The Cockermouth study site in England has been selected because of two main criteria. First, the Cockermouth study site introduces one of the first the new partnership funding policies in England. In addition, the study site includes local grassroots organisation as a key actor, which is strongly

involved in the implementation process of new policy. The key aim of this study is to assess the role and the interaction of local grassroots organisation in the local flood risk governance.

The civil parish of Cockermouth is located in the highly frequented tourist area in Lake District in the Borough of Allerdale, with the two rivers the Cocker and Derwent confluence close to the town centre. Cockermouth was flooded three times within less than four years – in 2005, 2008 and in 2009 (i35eng; i36eng). The 2009 event affected the whole of Cumbria as well as parts of Ireland and Scotland, but the Derwent and Cocker valley were particularly hit in 2009 (i35eng; i36eng). In Cockermouth, for example, more than 693 residential and 225 businesses were affected (Cumbria Resilience, 2011). Flooding occurred due to the high peak flow from the River Derwent (figure 4.15). Cockermouth includes a large number of rural oriented small-medium businesses, with more than 80% of them affected by flooding. Implications were that small-medium businesses engage with the Cockermouth Flood Action Group (FAG) as well as the ongoing partnership funding scheme.

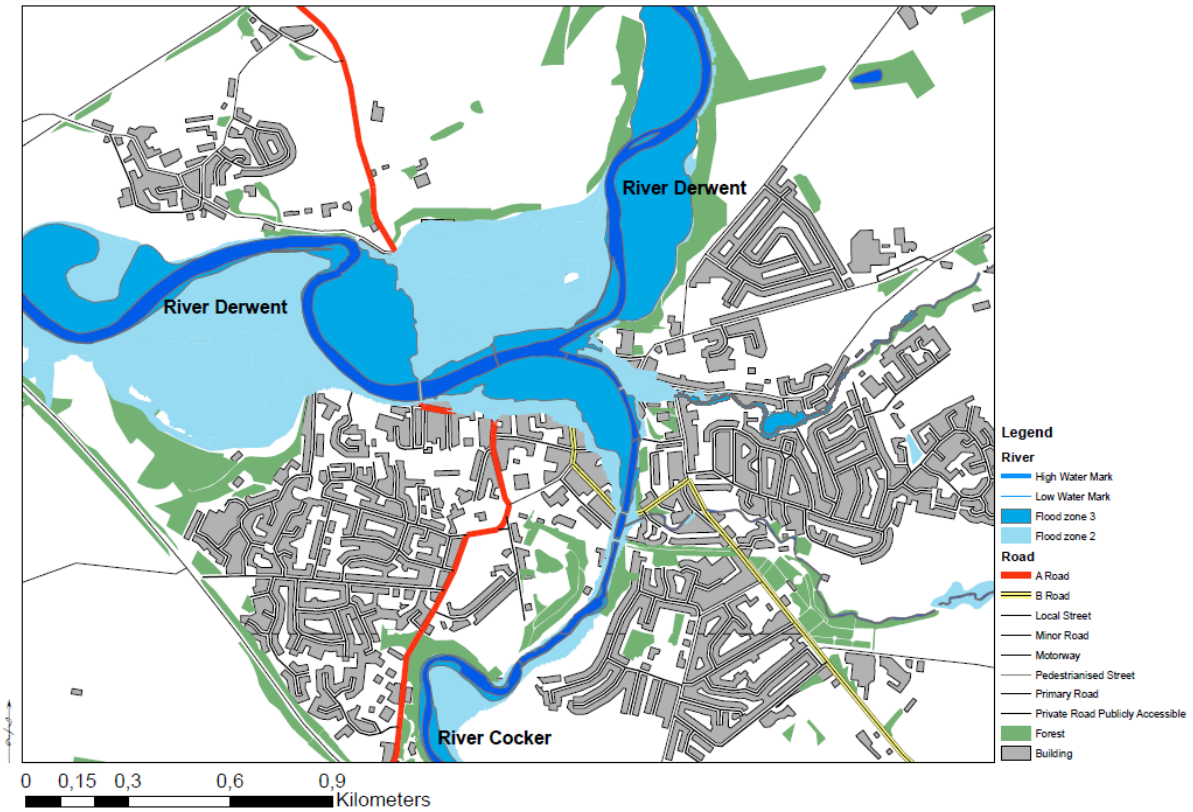

Figure 4.15: Overview Cockermouth study site

Source: own development; © EA (2009b); © Edina Digimap Ordinance Survey Service (2012)

In the study site of Cockermouth, the partnership approach between the community and the EA began mainly as a result of the 2009 floods. Between the years 2005 and 2008, Cockermouth was affected partly by two small flood events. After the 2005 floods, some residents of the town organised for their area a first local self-help group. However, the organisation had no wider diffusion to the whole town. The 2008 flood event re-enforced the creation of a second local self-help group in Cockermouth, to solve the surface runoff problem in the Gote Road. The Gote Road organisation started an intensive relationship with local and national politicians as well as the EA regional office (i36eng).

The Cockermouth partnership funding scheme included a wide range of different actors and stakeholders involved in the decision-making process. However, the key actors were the EA and the local FAG. The original flood alleviation project proposal foresees a total cost of £ 5.3 million. Within the new funding scheme, the payment foresees a funding for £ 3 million from national sources, which is not acceptable by the citizens because of the low degree of flood defence schemes (i37eng). First, the EA re-organised their approach to reduce the total costs to £4.4 million, such as selecting different contractors. Second, the additional funding gap was partly closed by local stakeholders and citizens, such as the temporarily increase of the local council tax (i36eng). At the end, the final project proposal had total costs of £ 4.4 million, with £ 3.3 million from national sources (FDGiA) and £ 1.1 million from external contributors (table 4.13).

Table 4.13: Flood defence funding in Cockermouth

Funding source	**£**
FDGiA	£4,400,000
Local Levy	£100,000
Cockermouth Flood Action Group	£215,000
Cockermouth Town Council	£120,000
Allerdale Borough Council	£100,000
Cumbria County Council	£700,000

Source: i36eng; i37eng

A key contributor for collecting fund raised money was the Cumbria Floods Foundation. Most of the financial resources were used for households without insurances to re-build their properties. The further money was used for the Cockermouth flood defence schemes (i37eng). Further key actor was the Cockermouth FAG in the overall process (i37eng; i35eng). The Cockermouth FAG collected up to £400,000, e.g. by temporarily increasing the Council Tax for three years (FAG). However, the local actors were not able to close the financial gap. The shortfall of £700,000 was closed by the Cumbria County Council (i37eng).The FAG played an important role in the relationship with other local Government bodies and with the citizens for convincing them to contribute to the scheme. Third, based on the previous flood event in 2009, a strong incentive was the problem obtaining insurance (see above), which encouraged the local actors to contribute to the funding. Fourth, the socio-economic structure of Cockermouth played an important role, especially regarding business contributions to the funding scheme. Cockermouth's businesses are mainly characterised by small-medium businesses with a strong focus on local and regional markets. Cockermouth has been a strong market town, where the tourism sector plays an important role in the local economy. The two factors (insurance and locus to local economy) increased the fear of economic decline in the community. This fear stimulated the business owners and citizens to contribute to the funding scheme to reduce the risk of future flood hazard events as well as to buy an insurance bill.

Morpeth (England)

The second study site Morpeth is the administrative head of the Northumberland County Council. The motivation for selecting Morpeth as a study sites was similar to that for Cockermouth. First, Morpeth was one of the first areas, which implemented the new partnership funding policy in England. Second, Morpeth has like Cockermouth a strong local grassroots organisation, which has been intensively involved in the policy discussions and implementations of the new funding system.

The county town has had a long flooding history at various levels: e.g. in 1963, 1967 and 2008. Key problems in the towns are fluvial flood hazards from the River Wansbeck as well as three smaller

rapid response catchments (Cotting Burn, Church Burn and Postern Burn) which run through the town (i42eng). Furthermore, Morpeth is affected by problematic surface runoff (i43eng). After the 1963 flood event, the public administration carried out flood defence schemes, mainly by improving and providing new river defences in the town, but for only some parts of the town (i43eng). High Stanners and Mitford Road (figure 4.16), for example, had no flood defence schemes. The rest of the town had a flood defence scheme of approximately 1:50 year standard of protection, with the exception of the Middle Green area, which had a higher defence standard – approximately 1:75 year flood defence. The heights of flood defence scheme were based on the flood depth from the 1963 flood event (i38eng). In 6th and 7th of September 2008, approximately 964 properties were affected by the flood event (JBA, 2011).

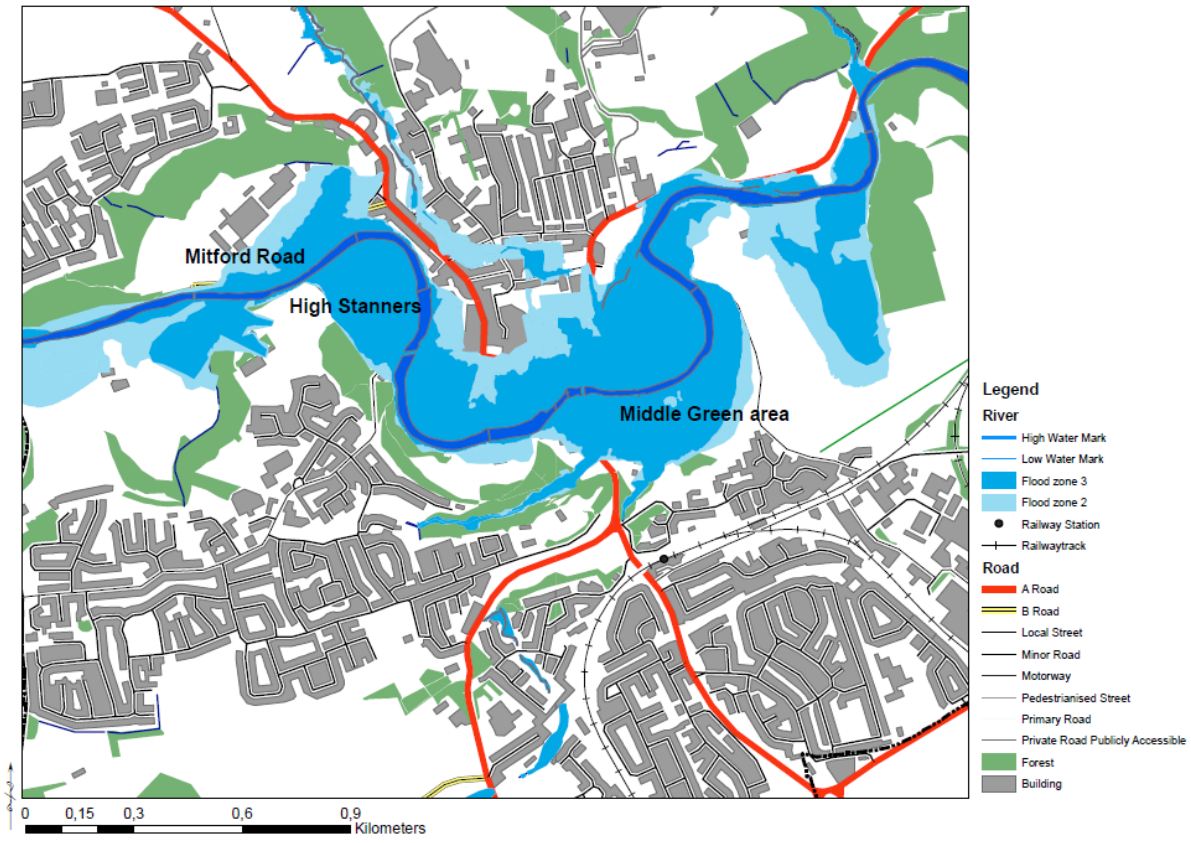

Figure 4.16: Overview Morpeth study site

Source: own development; © EA (2009b); © Edina Digimap Ordinance Survey Service (2012)

Nevertheless, after the 2008 flood event the EA started to re-design the business cases for a higher standard of protection (from 1:100 to 1:137). The introduction of the partnership funding scheme and the shortfall of the national contribution (fixed FDGiA of £9.6 million) for the original proposal needed a contribution from third actors. Here flood appraisal foresees the implementation of flood storage in the upper part of the county town with a storage capacity of 1:50.

The Morpeth study side includes a cooperative approach between three main actors (EA, Northumberland County Council, Morpeth FAG). Since the approval of the scheme, conflicts were mainly associated to the surface runoff problematic. The 2008 flood event was a combination between fluvial and pluvial flooding. In Morpeth, the Northumberland County Council as LLFA is responsible to manage the problems with surface runoff and risk from ordinary watercourses. The main issues refer to the funding of further measures in relation to reduce the risk of the surface runoff. Especially the EA focussed their funding only to the main river and not to further issues.

Bridgwater (England)

The study site Bridgwater has been selected being an opposite example compared to Cockermouth and Morpeth. Bridgwater has in contrast to the other two study sites no official local grassroots organisations, different socio-economic frameworks as well as no final – official contracts between the national and local authorities. Furthermore, the time frame is totally different compared to Morpeth and Cockermouth. The aim was to understand the impacts of no local grassroots organisation and different socio-economic frameworks in the policy discussion and implementation.

The town Bridgwater (figure 4.17) is located in Somerset county council and is a key priority area for future economic development strategies (i40eng). Key problems in terms of flooding of Bridgwater are: (1) the tidal flooding risk from the River Parrett and (2) a sea level rising of 978 mm by 2,108 (Sedgmoor, 2009a).

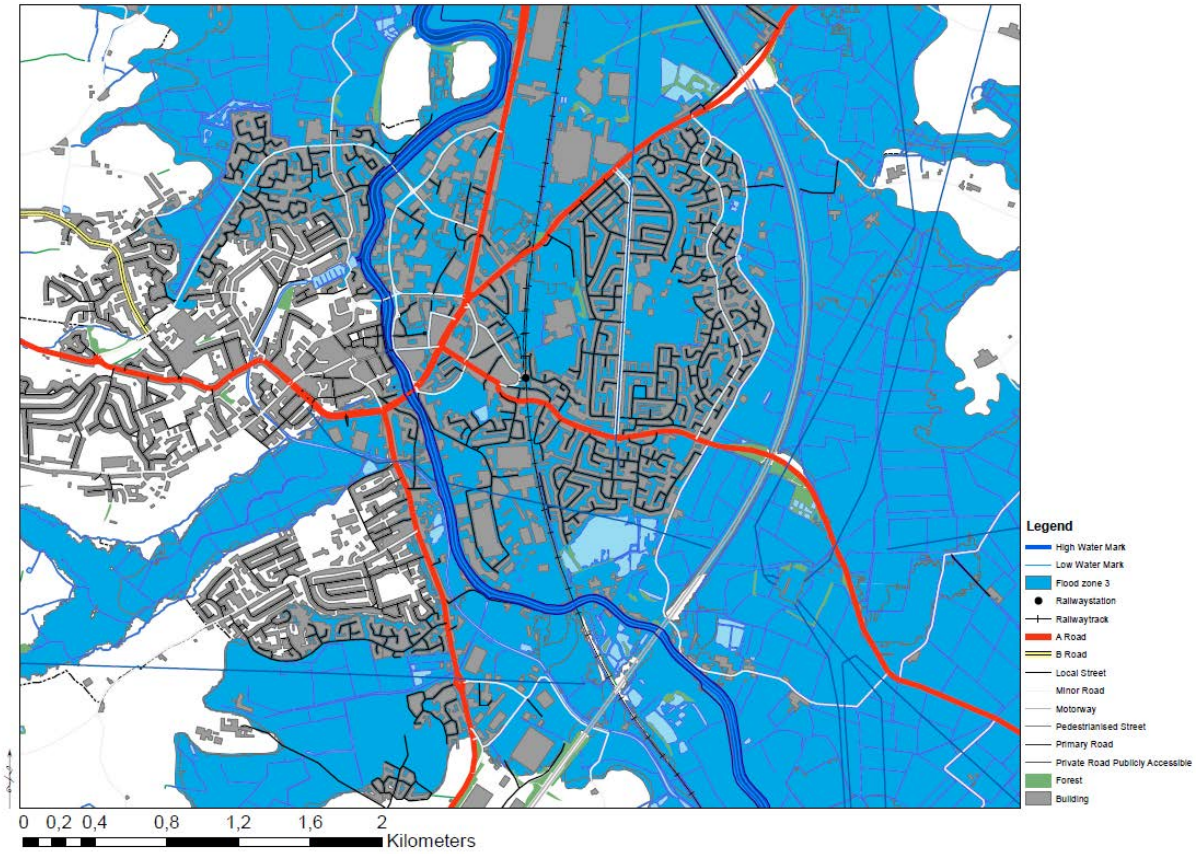

Figure 4.17: Overview Bridgwater study site

Source: own development; © EA (2009b); © Edina Digimap Ordinance Survey Service (2012)

The last tidal flooding affected the town in 1977 and 1981 (ibid.). In response to the 1977 tidal flooding, the public administration built hard defences (embankments and walls) from the entire tidal reach of the River Parrett until to Oath Lock (few kilometres inland). The flood defence schemes have a 1:200 year standard, albeit with some exemptions (i39eng). The current flood defence schemes protect approximately 8,400 houses and 800 businesses in Bridgwater (Sedgemoor, 2009a). Already the do-nothing scenario estimated a poor condition of the current flood defence schemes by 2030. Furthermore, with the forecast of climate change the sea level in the Seven Estuary will increase by 1 metre by 2100, which includes that the town centre needs flood defence walls up to 2 metres (currently 1 metre), which is socially and politically not acceptable as well as not technically feasible (i39eng). The actual proposals foresee the implementation of a surge barrier downstream of

the town, with total costs of £ 24.6 million and additional £ 8 million for the improvement of downstream flood defence schemes (table 4.14).

Table 4.14: Summary of economic feasibility of Bridgwater flood defence scheme

Option	Present Value Flood Damage £ million	Present Value Flood Benefits £ million	Present Value Costs £ million	Whole Life Costs (without discounting) £ million
Do nothing	1,699	-	-	-
Do minimum	915	784	0.63	2.1
Re-Engineer Existing Defences	Negligible	1,699	24	94
New Tidal Barrier	Negligible	1,699	18	54

Source: Sedgemoor, 2009a: 27

The current flood defences can achieve the fit-for-purpose as well as the realisation of the current regeneration plan. The Bridgwater regeneration plan foresee new properties development by 7,700 new properties by 2036 (6,200 new homes within the existing urban area, further 1,500 new homes north of Bridgwater). New developments in Flood Zone 3a foresee 3,677 new properties by 2026 and further 2,000 by 2026-2036 (Sedgemoor, 2009b). Sedgemoor County Council developed the Bridgwater Strategic Flood Defence Tariff SPD adopted by September 2009. The proposal foresees the contribution of 40% of the total costs of the barrier (£ 9.84 million to £ 24.6 million). To close this financial gap, the public administration in co-operation with the EA introduces a 'roof tax' on new developments (table 4.15).

Table 4.15: The levels of contribution set by the tariff

Development type / flood vulnerability	Flood Zone	Tariff
Housing (i.e. houses, flats, basement dwellings and residential mobile homes)	3	£1,500 per 1 and 2 bedrooms £1,750 per 3 bedrooms £2,000 per 4+ bedrooms
	1 and 2	£525 per 1 and 2 bedrooms £613 per 3 bedrooms £700 per 4+ bedrooms
Essential infrastructure (i.e. transport and utilities)	3	£2,000 per 100 sp.m of net additional floorspace per application to a maximum of £100,000
	1 and 2	No contribution required
Highly vulnerable (i.e. police, ambulance, fire station and caravan sites)	3	£2,000 per 100 sp.m of net additional floorspace per application to a maximum of £100,000
	1 and 2	No contribution required
More vulnerable (i.e. hospitals, pubs, nightclubs, hotels, schools, medical centres, camping and caravan sites)	3	£2,000 per 100 sp.m of net additional floorspace per application to a maximum of £100,000
	1 and 2	No contribution required
Less vulnerable (i.e. shops, restaurants, cafes, takeaways, offices, general industry, storage and distribution, assembly and leisure)	3	£1,000 per 100 sp.m of net additional floorspace per application to a maximum of £100,000
	1 and 2	No contribution required

Source: Sedgemoor, 2009b: 21

In general, the proposal includes also a financial contribution from the new developments in Flood Zone 1 and 2, in total approximately 35% of the £9.84 million (Sedgemoor, 2009c). The proposal foresees that new developments outside of Flood Zone 3a have a discount rate up to 50%. However, the proposal includes a maximum cap of £100,000.

4.3.Key findings

This chapter introduces the findings from the policy analysis and stakeholder and institutional mapping. I found a wide range of different stakeholders and actors in the policy interaction in the studied countries. The number of stakeholders and actors are strongly based on the institutional framework in both countries. For example, the privatisation of the water supply-system in England

or the different responsibility between upper and lower part of the catchment cause different governance structures and management systems.

The key findings from this chapter are:

- In Austria the main national acts include the Forest Act (1975), the Water Act (1959) and the Hydraulic Engineering Assistance Act (1985)
- In England the main national acts include the Flood and Water Management Act (2010) and the Floods Risk Regulations (2009) as well as Royal Commission on Land Drainage in England and Wales from 1927
- Austrian system include a Federal State system, where at federal level, different acts in regarding spatial and land use management exists as well as emergency management and disaster compensation.
- In Austria the key actors are the WLV and BWV dealing with the problematic of flood risk management. Both organisations have the responsibility to define the policy strategy for the country. Furthermore, both organisations have the operational responsibility of the flood policy as well as provide a large contribution to the funding scheme (approximately 80% of the total costs).
- In England the key actors are Defra and the EA. The EA supports and supervises other organisations, such as the LLFA, Water companies, Internal Drainage Boards (IDB) or Highway Road Authorities, to assess and organise the flood risk for which the organisation is responsible. Further, the EA is also a key actor in the distribution of the national funding scheme (Flood and coastal erosion risk management Grant in Aid (FDGiA).
- Key objectives in the selected countries are: (1) implement inter-local flood risk management concepts (Austria) and (2) the introduction of the partnership funding scheme in April 2011 to generate financial contribution from local and non-state actors, stakeholders and citizens.

- Funding rules in Austria are (in generally): 40% national; 40% regional and 20% local oragnised in contrast to England, where the national Government contribute (financial) between 50% and 100%.

A key difference between both European countries is the flood risk management strategy regarding to measures within the flood plain. The Austrian flood risk management strategy follows an increasing emphasis upon reducing the runoff adopting a catchment-wide management plan. On the other side, the English strategy focuses on coping with the flow at a local point. A consequence is the different scalar arrangements and governance networks in both countries (Swyngedouw, 2004; Cox, 1998, Brenner, 2004). The next chapter focuses on the scalar arrangements in the selected countries. The aim of this chapter is to provide the actual state spatial processes, construction of new territorial scales and their socio-spatial relations as well as the reason for scalar re-arrangements.

5. Drivers and scalar arrangements in flood risk management in the selected case studies

Research question: How scalar re-arrangements have been influenced by flood risk management? What mechanism and action have been used to change the policy?

This chapter explores the drivers in the new scalar arrangements in flood risk management policy. From the discussion in the chapter 2, the scale concept plays a fundamental element in current flood risk management debates, especially relating to the question of risk- and responsibility-sharing between national and local authorities and non-state actors. This chapter focuses on the causes, conditions and circumstances in which scalar re-arrangements develop and is the first chapter of the empirical results.

5.1.Drivers for network creation in flood risk management

In the partnership approach the first question refers to drivers for the creation of networks (Waddock, 1989; Plummer and FitzGibbon, 2004; Pomeroy et al., 2001). In particular, various scholars emphasise the preconditions or antecedents to build a co-operation process between various stakeholders relating to environment management (Waddock, 1989; Plummer and FitzGibbon, 2004; Pomeroy et al., 2001; Selin and Chavez, 1995). Drawing from previous studies, I have identified six general drivers from the literature that encourage stakeholders to co-operate (table 5.16).

Table 5.16: Drivers for network creation

Driver	Origin
Real or imagined crisis	Regional / national level
Intervention of a third party	Regional / national level
Legally mandate	Regional / national level
Common vision, definition or understanding	Local level
Existing networks	Local level
Leadership	Local level

Source: adapted from Waddock (1989); Plummer and FitzGibbon (2004); Pomeroy et al. (2001)

The empirical results show various mechanisms and actions encourage a change of socio-economic relationships in flood risk management. The Austrian system provides formalised rules to develop and to organise inter-local co-operations. In England the new funding policy changes the behaviour and interaction of the national authorities towards local actors and stakeholders. The involvement of local actors and stakeholders in the planning process shows an important step in the 'successful' creation of a partnership approach between the different local and national actors and stakeholders. In Austria an important development was the implementation of a 'fair' co-operation model between the different members involved as well as the involvement of 'key' actors in co-operation. Examples are the utility companies in Ill-Walgau co-operation. The co-operation model foresees the implementation of a combination of polluter-pays and beneficiary pays principles, where the downstream municipalities largely contribute to the financial costs of flood alleviation schemes. The key issue is the fair sharing of financial and risk burdens between the different members. The inter-local co-operation process is not a win-win solution between the different members. An important aspect is to reduce the negative aspects of an inter-local co-operation, e.g. regarding financial burdens. The key point in the negotiation process is to define a fair financial key between the different members (i19aut). There is a high fear in failure of the individual expectations into the inter-local co-operation. Lastly, the inter-local co-operation is normally built up after a major flood event or recent numbers of various flood events, for example Aist after the Danube flood event in 2002 (i9aut; i10aut; i11aut), or Weisseritz after the Elbe flood event in the same year (Wirth et al., 2008). The different study sites show that the inter-local co-operation was developed as direct reactions to recent flood events. However, the result from the interviews shows that other factors and developments (before the flood event) have played an important role. Nevertheless, in many cases the major flood event has been an eye opener for many local policy makers.

In England as for the 'old' funding system, the EA follows a strong top-down approach in the decision-making practices. This research study showed a more equal treatment between the different actors. The idea is to support the local decision process, because if the project costs are not

fully covered the local stakeholders have to close the additional financial gap. The quote below highlights the change in the EA.

> Participant: 'When I first started working with the Environment Agency I found them quite defensive and a little bit hostile towards us but when they realised that we were prepared to assist in a businesslike manner and negotiate with them and find a solution they started to kind of realise that if we all worked as a team we could get somewhere and with, you know, we're now coming up to the third anniversary and the flood defences are nearly completed' (Local authority, England).

In Cockermouth, the community encouraged the EA to change their flood defence scheme, especially the scheme along the Rubby Banks Road, where the citizens were very protective in respect to an "open view" of the river. The community was quite adamant in the decision process. The outcome of the discussion was the re-design of the flood defence scheme in Cockermouth with higher costs (i37eng). Overall, the partnership funding scheme moved the financial risk towards the local actors from the EA (i43eng; i37eng; i38eng) with the result that the EA are forced to work more closely with the different actors (i38eng). In comparison, the involvement of local stakeholders was very low in the decision process under the 'old' funding system. However, with the new partnership funding scheme the voice of the local actors is much larger in compare to the previous system.

The local FAG has been shown to be mainly as a strong lobby-pressure group. Addressing the financial contribution by the Northumberland County Council it has shown a strong interplay between the local actors and the Government body. The limitations highlighted that further projects cannot be completely funded anymore by the Northumberland County Council. In this case, the county council requested the contribution from third actors (i43eng). This results that there will be conflicts and lack of understandings by the local agents, especially in areas with a much higher socio-economic problematic.

Analysing the interview results, this study found some additional components (table 5.17). The components of precondition are divided into two sources (internal and external). The internal aspects refer to the members of inter-local co-operation; external refers to the aspects of the outside development and pressure. Each of the elements in the table will now be discussed.

Table 5.17: Preconditions in the development of new networks in flood risk management

Precondition	Description	Origin	Case studies
Effect of crises	• Flood event • Security approach • Pressure • EU Floods Directive	• Internal • Internal • Internal • External	• Austria • Austria and England • Austria • Austria
The influence of adequate leadership	• Promoter • Political support • Social capital • Cultural capital	• Internal • External • Internal • Internal	• Austria and England • Austria and England • England • England
Economic rational	• Positive net present value • Public contribution • Pooling monetary resources • Funding	• Internal • External • Internal/external • External	• Austria • Austria and England • Austria and England • Austria
Fair risk-sharing	• Distributional effects	• Internal	• Austria and England
Regional embeddeness	• Common historical developments and networks • Commuting	• Internal • Internal	• Austria • Austria
Common political vision and strategy	• Long term strategy • Solid management plan	• External/internal • External/internal	• Austria • Austria

Source: own development

5.1.1. Effect of crises

The first forces are relating to the aspect of crises. In general, the partnership process 'needs' a recent flood history or increase risk awareness at local level. The study sites in Austria and England show a policy change at local level after a recent major flood event. However, the need for a major flood event is more important at local level as an ‘eye opener’, less than as a catalyst for introduction of new instruments and policies (Penning-Rowsell et al., 2006). Analysing the interviews showed a confession of capitulation by the local authorities. In addition, the results show a high pressure from the citizens and local businesses to reduce the impact of future flood events. A key role played by private businesses in the partnership discussion. In the study sites, businesses stressed the possibility of de-localisation their branches to other regions. However, these industries were strongly affected by the last flood events and show an important interest to achieve flood defence measures to reduce the impact of future events. This was a key driver for the local

municipalities to start a regional discourse on flood risk management. On the other hand, the communities need additional strains from the outside. For the implementation of the EU-Floods Directive into national law, the Austrian government requested a risk assessment of new flood defence measures. Importantly, it should be ensured that the new flood defence scheme is not increasing the risk of neighbourhood and/or downstream communities. Consequently, large numbers of new local flood defence measures were not accepted by the regional water authorities or downstream communities. Due to the implementation of EU-Floods Directive, communities in high risk areas need a broader flood risk management plan. Further, in the policy on flood risk management an important incentive is the expectations of safety. Similar to De Marchi and Scolobig (2012), the empirical results noticed the importance of the guarantee of safety for residents. In particular, in the study sites which showed several flood events in a short time the demand for safety was a central argument to get engaged in the policy discussion. Influentially, a central concern was towards the insurance aspect (i36eng; i37eng; i38eng; i43eng). A key aspect, mainly in the study sites Morpeth and Cockermouth, was the fear of no longer being able to secure house insurance or insurance for businesses (i37eng; i38eng), with the risk of failure to obtain a bank loan, or the insurance bill becoming disproportional by expensive (i30eng). This aspect was a key driver for local stakeholders to get engaged in the political discussion. In contrast in Austria where flood insurance has no significant influence in flood risk management policy, because the flood losses compensation scheme is based on public tax and mainly excluded from property insurance policies (i26aut). Nevertheless, also in the Austrian study sites the demand for safety was important mainly in terms of not losing enterprises in the region (i10aut; i11aut). The interconnection between the private insurance system and the public policy of flood risk management can be understood as a dialectical interaction, where the private interests of householders and businesses – affordable insurance bills and access to mortgage – have become part of the general interests (request of flood alleviation scheme funded by the taxpayers) (Habermas, 1989). Therefore, Habermas (1989) sees the role of

the public authorities satisfied the needs of the actors, stakeholders and citizens which cannot be satisfied by the market.

5.1.2. The influence of adequate leadership

A second group refers to the need of local/regional leadership in the co-operation process. The key task was to mobilise the other members to join and to ask their contribution in the co-operation. All interview partners emphasised the importance of leadership in the discussion. However, most of the leadership reportedly came from the regional authorities rather than locally. In the English case study, the key leadership proceeded the FAG in participation with the EA; except where no local grassroots organisation exists the EA was the representative leader in the decision-making process.

A central debate is the educational and professional background as well as habitus of the residents. In the literature, Bourdieu (1986) described these circumstances as cultural capital. He distinguished between three main types of cultural capital (embodied state, objectified state and institutional state). Embodied state refers to the aspect of habitus of the people. Here cultural capital can be accumulated through cultural environment (home, friends, school, and colleague). Bourdieu (1986) emphasised that accumulation depends on the time period, the socio-economic framework and the social class. The second type (objective state) understood cultural capital as objects (e.g. paintings, books, or sculptures). Finally, the institutional states see cultural capital base on academic and professional education, e.g. academic qualifications, certificates. These three different types of capital influence the individual behaviour within the society.

The interviews highlighted the importance of social and cultural capital in the discussion between the different actors. Morpeth and Cockermouth have a very different sort of social class composition to other English areas. Both communities show a low level of deprivation in their administration unit. In Morpeth, for example, the members of the local FAG are well educated (e.g. lawyers, or architects). Moreover, they have a good network to the various political actors in the ongoing flood risk policy discussion as well as they can argue in a suitable way in sense of lobbying (i38eng). Similar

observations are found in the work of McCarthy (2004). However, in contrast these aspects play less important factor in the study site of Bridgwater. This town shows a different socio-economic structure in comparison to Morpeth and Cockermouth (see section 4.2.8). Here, the key actors have been the County Council and the EA. In sum, local leaders were able to engage and influence the decision-making practices based on their local capacities (Bourdieu, 1986; Kuhlicke et al., 2012). These local leaders achieved a more vocal than others and 'hijacked' the agenda to ensure their interests and objectives.

While analysing the cultural capital, especially the two study sites Cockermouth and Morpeth show clear advantages over Bridgwater or other areas in England (i38eng). In both study sites we can find well-educated and well-informed local residents. The members of the FAG have a high level of educational and professional background (institutional state). Furthermore, in both areas we observe strong concerns about the cultural heritage in the town (objective state). Especially in the study site of Cockermouth, the discussion is also focussed on the cultural heritage in the town. The local residents forced the EA to re-design the flood defence scheme to fit in the townscape (i36eng). A third type of cultural capital can be strongly observed in the FAG of Morpeth and Cockermouth. In Morpeth, for example, the interviews show well-educated and well-informed members of the FAG. The key problem is that partnership funding encourages inequality within the country. The policy envisions certain local groups (see also Featherstone et al., 2012). Featherstone et al. (2012) described this process as a 'roll-out' neoliberalism thinking and acting with the consequences of the move away from a nearly homogenic policy of flood risk management. The key problems are disadvantaged communities with no resources, expertises, social and cultural capital to engage in the decision-making process. In particular, communities, which suffered from former process of decentralisations, such as Bridgwater, are more vulnerable to the new funding system (Featherstone et al., 2012).

5.1.3. Economic rational

Further important aspects were economic arguments. Some interview partners stressed the need of individual/local benefits (i19aut; i6aut; i14aut). In most cases, the communities joined the co-operation because of a positive benefit for the community. In the economic literature, these councillors represent the principle of NIE (Weichhart, 2006; Niskanen, 1973). The theory emphasises the behaviour of the policy makers as self-interested agents. Their main purpose is to maximise their individual benefit. However, the implementations of inter-local flood defence measures were not only win-win solutions for all members. In particular, upstream communities achieve no or minimal benefits from the inter-local flood defence schemes. Nevertheless, not all communities follow the *homo economicus* principle. In the Aist study site, altruistic behaviour, i.e. where local authorities gain no benefits from the co-operation, was also observed and considered to be a reason for joining the partnership. However, this is more an exception than regularity. In all three study sites the aspect of solidarity played a role in joining the co-operation is mentioned by many interviews (i17aut; i12aut; i13aut; i15aut).

5.1.4. Fair risk-sharing

An important aspect refers to the social justice debate (similar results can be found in Johnson et al (2007) and Walker and Burningham (2011)) in the initiation of co-operations in flood risk management. In Austria, the central problem is that the inter-local co-operation includes a safety benefit transfer from upstream communities to the downstream communities. The partnership funding scheme allows sharing the local contribution between the members of co-operation. For some communities this is only possible to get flood defence schemes. To reduce this negative impact, most co-operations introduced a 'solidarity' financing key. This means a monetary transfer from downstream communities to upstream communities (see also section 4.2). Furthermore, the contribution of private actors in the inter-local co-operation process shows a higher acceptance for the local authorities to join the co-operation, e.g. Ill-Walgau study site (i17aut).

Important development refers to the positive answer of 'big' players in the region. The acceptance of 'large' communities and private actors to take part of the inter-local co-operation increases the acceptance of 'smaller' players to join the co-operation. Furthermore, an important aspect is the social impact in the region (Latane, 1996). The representatives from communities know each other very well and were not able to reject the offer. The study sites show a high social influence pressure between the different members.

5.1.5. Regional embeddeness

Regional and local networks are usually embedded in a local-regional environment, which influence the social capital within the region and therefore the human behaviour (Rutten and Boekema, 2007). From this perspective, the thesis constructs regional embeddeness primary on common historical developments (path dependency) and economic relationship, such as commuter flow, within the catchment. Several communities had past experiences with inter-local co-operations in flood risk management, e.g. Ehbach-Nafla Wasserverband (communities Göfis and Feldkirch) and Ill-Wasserverband (upper part of the sub-catchment) with Bludenz, Bürs, Nüziders, National Highway Road Authorities, National Railway and Regional Road Authorities; or the informal flood risk management partnership between four communities (Satteins, Schlins, Frastanz and Nenzing) and the Austrian Highway Road Authorities (i45aut). In summary, the region shows a long tradition in inter-local co-operations, which positively influence the creation of the Ill-Walgau co-operation. Therefore, the historical factor – working together in the past and knowing each other –influences the creation of a partnership approach.

In general, analysing the regional embeddeness between the different municipalities, I observed a polycentric structure and spatial development at the catchment level. Similar results were detected in the travel to work distribution (see following figures below).

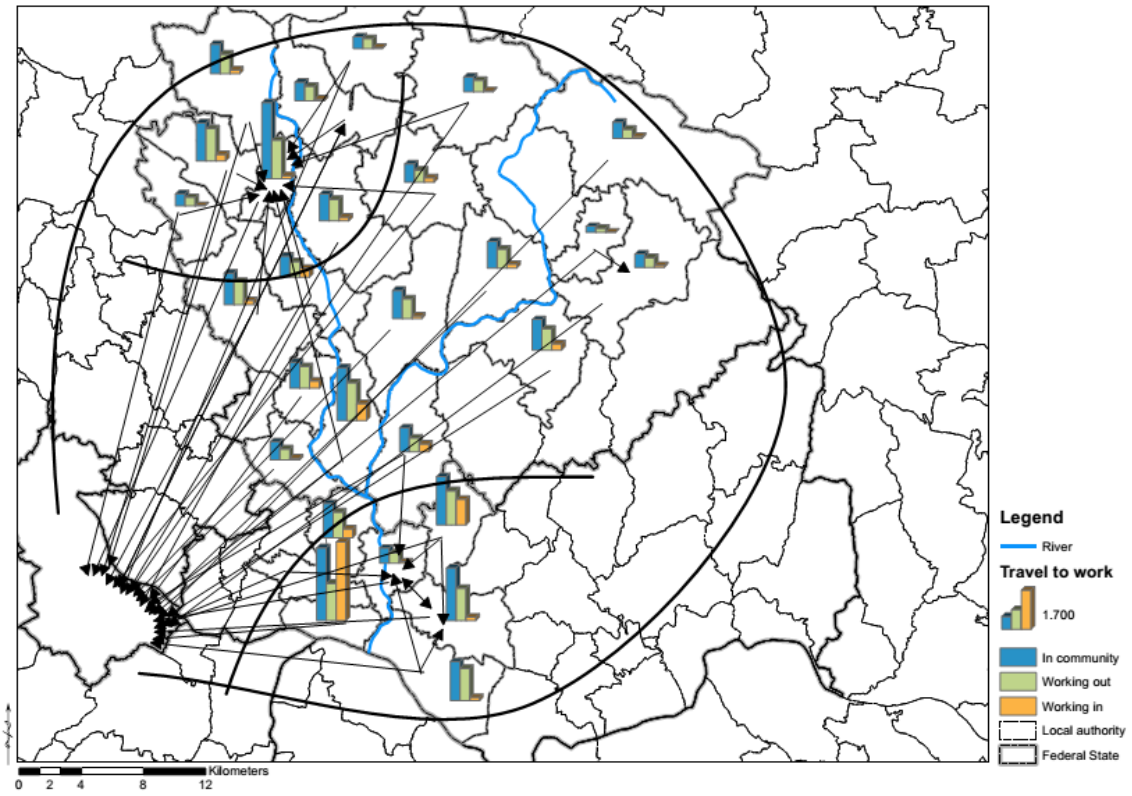

Figure 5.18: Travel to work, Aist study site

Source: own development; data Statistik Austria (2004)

Figure 5.19: Travel to work: Ill-Walgau

Source: own development; data Statistik Austria (2004)

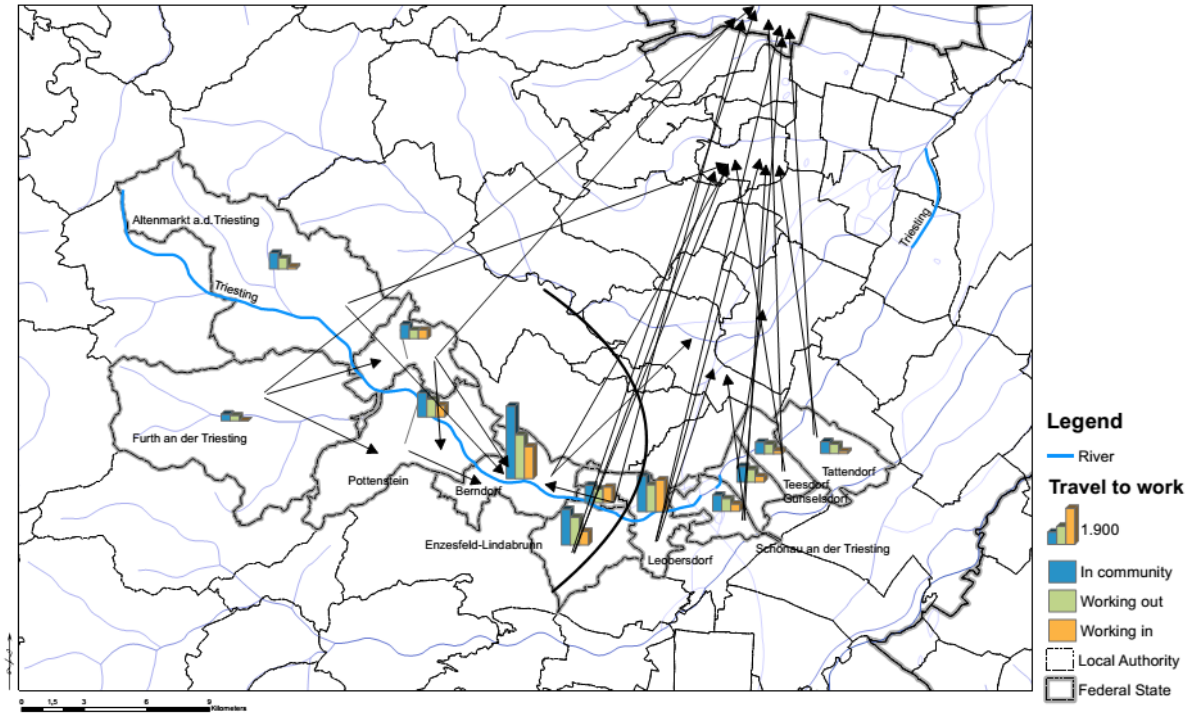

Figure 5.20: Travel to work, Triesting-Tal study site

Source: own development; data Statistik Austria (2004)

In the Aist study site, for example, I observed a mono-centric region, where Linz (capital of the Federal State Upper Austria) is the dominating centre with its industry and public administration headquarters. Linz and the surrounding area is a high attraction for the region. Most of the citizens from the Aist area travel to work into the Linz area (figure 5.18). In particular, the inhabitants from upstream communities are more likely to work in Linz than in the downstream communities. A key reason is the given infrastructure between Freistadt and its surrounding municipalities and Linz. There exist direct railway and highway roads connections, which reduced the individual transport costs. Consequently, the existing infrastructure interconnections exclude a direction connection between the upper and lower part of the catchment, with the results of a low economic integration process between the upper and the lower part of the catchment. This finding implies that lack of a common economic region complicated the creation of an inter-local co-operation; mainly the upstream communities see no benefit in the co-operation also in terms of their citizens working in the downstream area. With regard to flood risk management analysing the empirical results, in

particular upstream communities blocked the creation of an inter-local co-operation, because of the lack of a common economic region (i14aut; i13aut, i15aut). Nevertheless, a common economic region does not automatically lead to a situation where there is an inter-local co-operation (i49aut).

I also found a similar situation in two other 'smaller' study sites. The Ill-Walgau study (figure 5.19) shows two main polycentric areas at the whole catchment – in the upper part of the sub-catchment (Bregenz, Nüziders and Bürs) and at downstream area with the municipalities Feldkirch, Frastanz, Satterns, Schlins and Rankweil (which is not a member of the Ill-Walgau, but shows a key economic role in the region). Furthermore, the region shows a strong cross-border economic relationship, where a large number of Austrian citizens are working across the border in Switzerland. The situation in the Triesting-Tal is slightly different compared to the other two study sites. Here, I identified a stronger interrelationship between the municipalities in the upper and lower part of the catchment (figure 5.20). However, the travel to work structure shows more a one-way direction. Most employers from the upstream area are working in the industrial centres (e.g. Pottenstein or Berndorf) in the lower part of the catchment, but not vice-versa. A second direction, I observed especially in the lower part of the catchment. Here, a large number of employers choose to work in the large urban areas, e.g. Vienna, Mödling, Baden or Traiskirchen. A key reason is the well-developed transport infrastructure, e.g. train and highway, towards these urban areas (i5aut). Generally, the empirical results do not show any clear evidence that a common historical development and strong economic interactions between the different local authorities promote a partnership approach between different actors and stakeholders in flood risk management. This is in contrast to the economic geography literature; in this case a common historical development has been an important factor for corporate culture to cooperate and to promote the regional competitiveness and innovation (Gärtner, 2011).

5.1.6. Common political visions and strategies

Further another important issue is a common vision and a solid concept for flood risk management. The long term strategy had to define the inter-local co-operation process. The main argument was to

know what the purpose of the inter-local co-operation is and why the communities should join it. The concept should include: where are the problems, what are the targets and objectives and how do we achieve these targets. Here, the national and regional authorities play a particular role. However, the co-operation between the different actors is very difficult. In general, the co-operation process includes a high risk of failure. The main problem is the gap between policy guidelines and the implementation process at local levels (Cowell and Owens, 2006) with the result being misunderstandings and conflicts between different actors about their interests and understanding (Mason and Muller, 2007). The result of new scalar re-arrangements can be policy failures and social protests (MacLeod and Goodwin, 1999). The interviews underlined the important aspects of a continuous interaction between the different agents (mainly face-to-face) to reduce the risk of failure. Furthermore, co-operation between communities should be stable based on a strong legal basis and increased frequency of meetings and interactions.

5.2.State spatial process

The analysis of the rescaling process (new space creation) and their socio-spatial relationships follows the theoretical frameworks developed by Brenner (2004), Jessop et al. (2008) and Perkmann (2007). The integration of the main research interests – power and interests of each actor, stakeholder and citizen, their interaction and performance in the scalar debate – allows us to overcome the limitations and traps in following only one research dimension (Brenner, 2004; Jessop et al., 2008). To provide a more holistic view, I have elaborated a stepwise analytical approach in the assessment of scalar constructions, their socio-cultural structures and their influence and consequences for the relationship between the different actors, stakeholders and citizens under the new regime. The analysis of the rescaling process (new space creation) and their socio-spatial relationships follows the theoretical frameworks developed by Brenner (2004). Brenner (2004) combined the theoretical concept of Henri Lefebvre's (2007) *State Space* and Bob Jessop's (1990) *State Theory*. The combinations incorporate the transformation of national-state level and the

impact towards regional development (Klink, 2013; Grimm, 2013). Brenner (2004) developed an analytical framework to assess and to interpret changing governance structures. This is highly relevant to understand central – local and state – non-state relationship (Li and Wu, 2012). According to Brenner (2004), scalar re-arrangements are mainly influenced by the general interactions (strategy) by the state as well as the activities resulting from the new scalar arrangements (projects). Table 5.18 summarises the basic characteristics of politics of scale in the selected case study and study sites.

Table 5.18: Current state spatiality in Austria and England

	Austria	England
State spatial projects	Upscaling of administration, planning and decision-making practices towards inter-local co-operations; uniform and standardised bureaucratic exposure; regional framework	Devolution to new scales (local); downscaling and outscaling of decision-making practices
State spatial strategies	Multi-scalar activities; favour inter-local scale for flood risk management	Introduction of multiplicity scales; uneven flood risk management planning to allow localities to implement flood alleviation schemes; central still highly coordinated flood risk policy

Source: own development

Partnership funding, for example, foresees a stronger engagement of local actors and stakeholders in the flood risk management discussion. Further, the English study sites show a change in the responsibility in terms of design and financing. In terms of partnership funding, local actors and stakeholders have gained an important role in funding and in organising external contributions to close the financial gap.

> Participant: 'the [name] Flood Action Group worked very hard to secure funding they pulled in money from all sorts of different sources (...) So it's been a mixture of funding from householders, businesses, Flood Action Group, the Charitable Flood Foundation and local Government' (National Authority, England).

In the three study sites the level of local contribution is between 25%-50%[26]. Thus, the three study sites show different approaches to coping with the financial gap (see section 4.2). Partnership funding encourages local actors to get actively involved in the decision process, which is a central

[26] Bridgwater: 40%; Cockermouth: 25%; Morpeth: 50%

objective of new funding regime to encourage local actors, stakeholders and citizens to engage in flood risk management. In particular, a central objective is to encourage local level to take over responsibility from the national Government (i38eng). This finding is examined in following interviewee statement.

> Participation: 'Now there was also quite another notable difference I think came about from the community had such a stake in the scheme and paying a substantial proportion towards the cost of it, they wanted a very big say in what was built, and...I mean we always do consult with the local community about all development proposals and take their views on board, but in this case there's a stretch of the scheme along [name], where people were very protective about the open view of the river (...) and they didn't want to lose that (...) we of course would want to take the more conservative approach, or certainly amongst our operations team there was a fear of something with moving parts and the potential for it to go wrong, so yes, traditional flood defence wall and, of course, that's the cheaper option. But the community were quite adamant (...) The outcome of all the consultations we had was, it become very clear that anything other than the self-raising barrier we were going to struggle to promote, so we'd gone for the construction of the self-raising barrier (...) but yes, that was definitely a difference that the local funding of the defence scheme brought about, this demand for a real say in how the money was spent' (National Authority, England).

In Cockermouth, for example, the local actors have already influenced the decision process to ensure their interests. They encouraged the EA to re-design the businesses proposal to include the needs and interests of the town (economic benefits) and individual householders (aesthetic benefits), such as self-raising barrier without losing the view to the river (i36eng; i37eng). An important aspect for the self-organisation of local stakeholder groups was the lack of political representatives, especially their lack of support and interest after the flood events with the result of frustration and mistrust of the local residents regarding the public administration. So, scale jumping can take place in response to the mistrust to national authorities. The 2009 flood caused a large impact on the whole town with the creation of the Cockermouth FAG. Furthermore, the role of the Cockermouth FAG shifted from a lobby group to a professional partner in the discussion. The already existing experiences from the previous flood events as well as through broader interaction in the community, recent the FAG could attract new members with different backgrounds and knowledge (i30). Furthermore, an important aspect was that the local groups already could orient and request

support to the existing structures of the National Flood Forum (NFF)[27]. These two aspects could increase the willingness of engagement in the community.

For the EA these events were considered to be more minor problems when compared to other hotspots in the region, e.g. Carlisle in 2005. The following 2009 flood event caused large pressure from the local stakeholders in the local flood policy discussion. The interviews showed a first key development affected directly the FAG. The 2009 flood event caused a large impact on the whole town with the creation of the Cockermouth FAG. Secondly, there were already existing clear linkages and relationships between the different key actors, which supported the initiation of the discussion. Third, the role of the Cockermouth FAG shifted from a lobby group to a professional partner in the discussion. One reason was the change in the interaction of the FAG with the EA. The already existing experiences from the previous flood events as well as broader interaction in the community, the FAG could encourage new members with different backgrounds and knowledge (i30eng).

A further development was the collaboration of the FAG with an external consultant company to present their first flood risk management plan for the town on a professional basis. At the beginning, the EA was reported to be mainly reserved and defensive relating to co-operation with FAG (i36eng). However due to increase of professionalism of the local FAG, the EA opened the door to the FAG to be part of the planning process; this was a shift from a top-down relationship to a more equal partnership between the different actors. In summary, a key aspect was the change in the local FAG by incorporating internal and external knowledge, such as recruitment of specialists and collaboration with private consultant groups (i36eng; i37eng; i38eng). Here I observed a strong leadership position by the Cockermouth FAG both to start and to organise the interaction between both sides (local-national). Subsequently, the steering group of the FAG addresses flood problematic towards the different Government levels and organisations.

[27] The National Flood Forum (NFF) was established in 2002 in England as a bottom-up grassroots organisation to support to support victims of flood events, in particular for the recovery as well as prevention (NFF, n.d.).

The involvement of local actors and stakeholders in the decision-making practices demonstrated a shift in power between national and local level. Nevertheless, the new scalar arrangements have not changed the power inequalities within the country. One of the consequences of the rescaling process was the downscaling of power towards local actors and stakeholders. In particular, the use of power (Sayer, 2004), indicates a change in the power settings based on partnership funding as shown for Morpeth and Cockermouth. The local level has become more capable and dominant in the decision-making practices based on their need of financial contribution towards the flood alleviation scheme. However, the empirical results manifested that also the local capacity is strongly necessary to change the power settings and especially the use of power. Similar results were identified in Morpeth (i38eng), where partnership funding delegated power towards local scale (Cook et al., 2013). However, the Bridgwater study site was different in comparison to the other two English study sites with no direct influence of local actors in the designing and planning process, because the lack of local capacity to engage in the decision-making discourse. Consequently, the EA developed and led the proposal and implementation for the flood alleviation scheme, where the local level was excluded from the decision-making practices.

The empirical results show a shift from a centralised approach towards a more decentralised state, especially to overcome the fiscal squeeze and cuts in the actual spending review period (2010-2015). The transfer includes the change of various regulatory tasks from the national towards a local level. Examples are the organisation of local financing and planning processes, which strongly depends on the EA – relationship with local actors – and if the local actors are able and willing to respond to the new tasks and duties.

> Participant: We didn't really apportion cost on [name of the town] and who was going to contribute what. It was very much a … this is where we are, this is where we need to be, and where could we source that funding? And it really was…we didn't assign that you get his much and you get that much, it was very much a…how we can maximise the income and we were chasing a target' (National Authority, England).

This included a top-down rescaling process, initiated and encouraged by the national Government. The rescaling process included mainly two main directions: downscaling from national to local level

with the consequences that the local level had to outscale the additional tasks and duties to non-state actors and stakeholders. The main reason for this was the lack of capacity by local authorities to deal with the new responsibilities. But whereas in Cockermouth this resulted in significant re-scaling where local actors were able to influence (scale jumping) the planning outcomes down to the level of aesthetic detail, in Bridgwater it was a different story. In sum, the new scalar arrangements empowered a specific group of citizens (see also chapter 6).

The new policy framework includes a re-orientation in terms of financing, development and implementation of flood risk management. Nevertheless, the local impact on the actual policy discussion is strongly limited; approximately 93% of the financial contribution is still nationally organised (FDGiA) (House of Commons, 2013b). Interestingly, partnership funding did not provide any evidence of a broader empowering of local levels (key objective of localism debate). The outcome was that the government still had to define rules and objectives, but mandated other actors and stakeholders to realise the national goals and objectives, such as costs savings or implementation of 'hard defenses' instead of adopt a sustainable flood risk management system.

Additionally in the English case study, I identified a strong differentiation and concentration of flood risk management activities and investments. With the introduction of the priority scoring system (in 1998), the different flood risk management projects have been made to compete against each other. A key focus was the aspect of economic growth and the increase of competition for the attraction of local, national and international capital (i33eng).The key objective is to invest in the most competitive space (Brenner, 2004) with the consequences of an uneven development of the country's flood risk management schemes. The introduction of partnership funding has increased the divergence between the local communities based on local resources, such as economic, social and cultural capital. The interviews have shown differences in the development of pathways in the implementation of partnership funding, which are also based on networks and local interactions in the policy discussion (see section 6.4).

In particular, the English flood risk management system has increased customisation in arrangements between the different actors. The flood risk management system has been adapted to the local contribution and the influence of local actors in the negotiation process with national actors (i38eng). Furthermore, the English partnership funding schemes include no consistent standard in relation to the amounts of contributions of each partner and the negotiation process. According to the empirical results, this customised national administration standards increase the local specific arrangements according to place-specific policy, such as the funding arrangements from each study sides. The consequences were the development of different local institutions, which emerge from different responses to the new policy. According to Brenner (2004), this politics of scale has increased the unevenness in the country where the national state focussed on specific localities. This led to a change in the relationship between different authorities (national and local) as well as between state and non-state actors and stakeholders with the outcome of hollowing-out of the state (McCarthy and Prudham, 2005) as well as critical legitimacy problems, because of local grassroots organisations in the decision-making practices (Allmendinger and Haughton, 2009). Influentially, the new scalar arrangements increased the interaction and resources (time and costs) between the different scales – especially between national authorities and local actors and stakeholders (i37eng).

Differences were observed in the Austrian flood risk policies, where the regional actors have introduced a more centralised system (based on catchments). The policy shift foresaw the upscaling of responsibility and duties from local authorities to the inter-local co-operation. The shift of responsibility was from local to inter-local levels, e.g. in the case of negotiation with local land owners, financing and management. The inter-local co-operations are mainly responsible for the implementation, financing and maintenance of the assets. Their key task is the negotiation process with the local land owners, where the inter-local co-operation plays a crucial role in the whole process. Normally, the inter-local co-operation leads this process in collaboration with regional farmer representatives and local councillors (i12aut; i20aut). In some of the cases the local

councillors have not been involved in the negotiation process, depending on his/her relationship with local landowners (i19aut; i5aut; i12aut). Moreover, the inter-local co-operation undertakes additional management strategies, like the inter-local forest management strategy in the Aist study site. The development and implementation of multi-objectives encourage the co-operation strength and provide an important stabilising factor. A second additional task is the communication process with local citizens and regional authorities. In the Aist study site, especially the inter-local co-operation is responsible for the communication and interaction with local citizens. In summary, the interaction of the co-operations in flood risk management includes an upscaling process from the local municipalities towards an inter-local spatial scale. The inter-local co-operations take over tasks, such as communication and maintenance, from the local municipalities. Overall, from empirical data I identified a two-way rescaling process: (1) from local authorities to the inter-local co-operation (upscaling)(see above), but (2) also from the regional authorities to the inter-local co-operation (downscaling), such as planning and implementation of structural and non-structural measures. The direction and range of scaling depends on the self-interest and capability of the inter-local authorities (see section 6.4). Inter-local co-operation with strong capacity adopted more tasks and responsibilities from regional and local authorities. Similar developments can be identified in the politics of scale settings, where both countries show changes of the scalar structures based on new national policies (top-down change) (Jessop et al., 2008; Cox, 2013). In contrast to the literature (Delaney and Leitner, 1997; Leitner and Miller, 2007), focussed on a strong nested scale idea, the empirical results show further developments like bottom-up changes in scalar arrangements. The study sites show also bottom-up incentives to change the scalar arrangements, such as shown in the Aist or Cockermouth study sites. Nevertheless, the empirical results show a strong top-down change of scalar arrangements.

5.3.Key findings

In this chapter, I provide the results of analysing the drivers and current scalar arrangements in flood risk management as a central framework for nature of governance and their structures in flood risk

management. Results indicated changes in scalar arrangement were based on different political developments at different levels, in particular international, national and local. The main findings are:

- In England, the empirical results indicated a shift from a highly centralised decision-process towards a broader decentralised approach, where the national Government transfers various regulatory tasks, duties and responsibility from national level to the local authorities. The new policy framework includes a re-orientation in terms of financing, development and implementation of flood risk management.
- The English flood risk management system has increased customised relationships between the different actors. The flood risk management system has been adapted to the local contribution and the influence of local actors in the negotiation process with national actors.
- The Austrian flood risk policies, where the regional actors have introduced a more centralised system (based on catchments). The policy shift foresaw the upscaling of responsibility and duties from local authorities to the inter-local co-operation. The inter-local co-operations take over tasks, such as communication and maintenance, from the local municipalities and planning and implementation tasks of flood alleviation schemes from the national and regional authorities.

The next chapter will demonstrate the outcomes and consequences of new scalar arrangements in flood risk management policy. In particular, the chapter focuses on the influence of rescaling processes to policy design in both countries, especially their impacts towards policy networks.

6. Impacts and outcomes of new scale constructions

Research questions: How cross-scale dynamics have been influenced national by flood risk management strategy? And what are the barriers and limitations of new scalar re-arrangements in terms of network governance, and what are their social and political functions and consequences?

This chapter explores the scalar arrangements in flood risk management policy. The aim is to understand the scalar re-arrangements in flood risk management policy and their impacts in the decision-making practices as well as the social structures of the key actors and stakeholders. From the discussion in the chapter 2, the scale concept plays a fundamental element in current flood risk management debates, especially relating to the question of risk- and responsibility-sharing between national and local authorities and non-state actors. Rescaling processes encourage new definitions and discussion of each actor and their role in policy discussions and social relation as well as their linkages in the definition and implementation of policy strategies (Reed and Bruyneel, 2010; Cox, 2013; Pugalis and Townsend, 2013). The outcome of rescaling is manifested as changes in the relationship between the different agents and actual governance framework (Thiel and Egerton, 2011; Gualini, 2006; Thiel, 2010). The academic debate in the scalar re-arrangements is strongly focussed on causes and consequences of the construction of new territorial scales as well as on historical developments and conditions which influence them. Recent research works are focussed on the socio-cultural relationships between the different actors, stakeholders and citizens (Jessop et al., 2008). A key focus has been the aspects of power in the interaction between the different actors, stakeholders and citizens in policy-decision practices (Allen, 2009). In the second sense, scales have a strong influence on the interactions as well as performances of actors and stakeholders in the policy discussion.

6.1.Shifts in the socio-economic relationships

The new scalar arrangements lead also to change in socio-economic relationship between the different actors, stakeholders and citizens within new network structures. The analysis revealed that in the English flood risk management system, a shift in the socio-economic relationship within the

country occurred with the introduction of the partnership funding; with the aim of empowering the local level (Allmendinger and Haughton, 2012). The new funding strategy in England, for example, favours local actors to get more involved in the actual flood risk management discussion. However, the interviews revealed that the local level is seen as a key factor in the overall discussion (i38eng). The new direction devolves power and responsibility towards local actors, such as grassroots organisations like FAG, which need adequate structures and resources to use this empowerment. The outcome is increased competition between the different local communities and a consequent shift to exclusive flood risk management policies. The policy shifted away from understanding flood risk management as a public good towards a narrow club good for privileged places (i33eng; i34eng). The objective is to realise flood alleviation schemes in the areas, where anybody can pay and/or lobby for them. Overall, partnership funding has increased the place-specific governance structures resulting in an intensification of uneven developments between the different areas. An interesting observation from these interviews is that partnership funding allows place-specific decisions in the design and level of standard protection, positively for localities with adequate financial and cultural background; and negative consequences for communities without adequate social and cultural background (lack of interaction at political level) or financial background (not necessary financial resources to realise higher flood protection standards). Additionally, the final decision has shifted from a technical-objective towards a more political-subjective approach. Key objectives were the economic viabilities of the places which are stabilising norms and values in partnership development (see also section 7.2) as well as also ensuring a political engagement by local actors and stakeholders: for Bridgwater re-generation, for Cockermouth and Morpeth especially affordability insurance payments. This enhances differences in the local institutions forms and settings with the result of uneven local policy regimes (Brenner, 2004). In sum, the English policy opens a wide range of possibilities and different approaches, which strongly depend on local actors and their interests and social capacity. Therefore, the local actors have more responsibility and space compared to those in the ‘old’ funding regime. The new funding policy provides these new opportunities for local actors,

but this requests also the mobilisation of local actors (Cox, 1998; van Schendel, 2002; Collinge, 1999). Primarily, the members from local FAG in Morpeth and Cockermouth mobilised at local scale to use this possibility to change within and across scale their flood risk management plan. Here, the local social groups moved to a higher level (national) of interaction (space of engagement). For example, the local actors use their opportunity to secure their interests. In the selected study sites, I identified that local actors are not only active at local level, but also at national level, where they build and operates networks beyond local scale (Kythreotis and Jonas, 2012). In both study sites, the FAGs have built a relationship towards national actors and used the space of engagement to influence the policy discourse at national scale (Cox, 1998; Kythreotis and Jonas, 2012). Interestingly in terms of power (see section 2.1.2), the local groups influenced particularly the first and second dimension of power relationship (Lukes, 2005). The local grassroot organisations, such as Cockermouth or Morpeth FAG, modified the behaviour of the national Authorities, such as the EA, or other local actors, such as the County Council, within the decision-making process, mainly concerning the change of the design of flood alleviation schemes (first dimension). Furthermore, the local groups had the ability to shape the whole policy agenda. In the Morpeth study, for example, the interaction with local grassroots organisations modified the policy framework for the County Council to close the funding gap in Morpeth and to avoid additional fully funded projects within the County (second dimension). Here, the FAG controlled the agenda of the County Council. On the contrary there are the Austrian study sites, where the new scalar arrangements also influenced the third dimensions, such as flooding agricultural land in the upper part of the catchment to protect downstream communities (see section 7.2).

The consequences of these new scalar re-arrangements were new governance structures, policy outcomes and power geometry between different scales initiated by public and private actors and stakeholders (Gibbs and Jonas, 2000; 2001; Jordan et al., 2005; Jordan, 2008) to promote resilient flood risk management (Pitt, 2008). Their key aim was to ensure strategic advantages compared to other local authorities and their interests, where these multiscalar governance networks influenced

the decision-making process. In sum, the policy problem is localised oriented, but where the FAG utilised political networks to ensure their needs and interests. In the literature, these developments were described as politics of scale 'from below' (Kythreotis and Jonas, 2012). The FAG has been a powerful vehicle for the mobilisation at local level, as observed in Cockermouth and Morpeth and found during the interviews. At national level, the FAG interact with national politicians (i.e. Member of Parliament), especially in the cases of Cockermouth and Morpeth. The empirical results show that not everyone from the local level is able to jump to a higher level. However, an important issue refers to the adequate background of the local actors at national and regional level to change the social interactions and power structures, such as local grassroots organisations in the study sites Cockermouth and Morpeth. The jumping scale includes a change in the regulatory processes and approaches, as already mentioned by Swyngedouw (1997). The new scalar arrangement enforced a new regulatory processes and approaches in the flood risk management system. The implementation of the partnership funding included a wide range of changes in the current approach. Nowadays, the different actors have to follow new regulatory processes introduced by the national Government to satisfy the realisation of the project, especially aspect of level of contribution, accountability or sharing risk burdens (see also appendix 3). Furthermore, partnership funding introduces new regulatory approaches, e.g. interaction between the different actors or partnership funding calculator. The change in the scalar arrangements includes a stronger position towards local actors in the decision-making process. Following Smith (1992), the new scalar arrangement and political strategy was strongly followed by the marginalisation of actors in the flood risk management system. In the 1990s, the English flood risk management system shifted its focus from a strong rural basis to a stronger focus towards urban areas (see also section 4.2.10). Therefore, rural communities did not benefit from these new political circumstances. The partnership funding engages with local actors in terms of funding. Subsequently, the local actors demand to influence the current local flood risk management discussion (see above). This explains the strong presence of rural-local actors in the new policy discussion. The jumping scale allows

marginalised actors to use this prospect to ensure their interests. However, the analysis of the interviews revealed that only a few local actors have the capability to use this opportunity (i38eng). Within the scale jumping, the FAG created 'parallel' networks to interact at national level (Allmendinger and Haughton, 2009).

Differently in the Austrian case study, where local actors and stakeholders are jumping between multi-scale directions (Kythreotis and Jonas, 2012). In the Austrian case study, the scale jump was observed of local actors to an inter-local level – mainly to members in the steering group to interact at local (downwards) and regional (upwards) scale. This foresees that the scalar arrangements do not only depend on top-down policy interventions. The local and regional actors introduced a new scale arrangement, where local actors also get more involved in the flood risk management system. The scale jump shifted the relationship between the different local and regional actors, for example in the Aist study site. Here, the local actors benefited from the new administration structure, especially in the interaction with the regional actors. They exploit the opportunity to ensure their interests and objectives to overcome a 'classical' top-down approach. The inter-local co-operation has changed the boundaries and scalar arrangements in the management system: away from a local perspective towards at catchment-wide management plan. In particular, the networks between the different local municipalities enable them to realise catchment-wide flood defence schemes. The interaction of local actors mainly focuses at a local scale compared to the English case study. A key reason is the different administration structure between both countries. However, the development and the motivation are similar between both countries. However, also here I observed differences between the different study sites. A key aspect is the mobilisation of local actors. The mobilisation is focussed in most of the study sites on local politicians, in contrast to the scale jump in Morpeth and Cockermouth. The process of scale jumping is based more on external drivers as already Peck (2002) noticed. The three Austrian study sites were strongly pushed by regional authorities to organise and to interact amongst themselves at a meta-governance structure.

Austrian flood risk management follows a relatively uniform structure. Based on the interviews, the Austrian approach has established a uniform administration practices with local adaptive forms. The overall goal of all three study sites has been the implementation of inter-local flood defence schemes – mainly flood storages – and local linear measures to reduce the impact of future events (i9aut; i7aut; i11aut; i19aut; i20aut). Differences were identified in the detailed management planning, like forest management concepts in Aist or ensuring of natural retention areas to increase biodiversity in Ill-Walgau. The national Government introduced a standardised approach in the organisation structure of the inter-local co-operations, but also similar-fixed rules for administration processes and approaches, especially in relation to planning, approval and funding (i3aut; i26aut). Partnership funding contributions, for example, include a relative uniform standard for all projects in each Federal State[28], which is different to the English partnership funding scheme. Influentially, the Austrian policy tries to redistribute the resources in flood risk management in order to equalise the distribution of investments (independently between rural or urban areas). In summary, the aim is to provide an equal-similar security-approach between the different regions (for example 1:100 standard protections for most of Austrian flood alleviation schemes) (i26aut).

In sum, as highlighted by the table 6.19 the Austrian flood risk management system includes the introduction of multiple spatial scales with the introduction of inter-local scales. However, the policy does not differ between local or inter-local co-operations in the distributing of funding or final approval (i24aut). Here, the public administration does not distinguish between projects at local municipality of inter-local, rural or urban areas. Thus, the policy attempts to introduce a more equal-uniform system between the different areas. Interview participants highlighted that the national scale promotes a fundamental unit in contrast to the English policy. The result is that the system depends less on elite groups. Also the use of the CBA as a final selection tool shows a minor importance in the decision-making process (i24aut; i26aut). In particular, rural areas have a strong position in the actual flood risk management debate (i23aut), also when the different actors and

[28] National: 40%; Regional: 40%; Local and third actors: 20%

stakeholders consider the interplay between the memberships of municipal and regional councils. The current relationship between national-regional-local in the selected study sites are summarised in table 6.19.

Table 6.19: Overview of state spatial process in Austrian and England

		State spatial projects: (Question of responsibility)	**State spatial strategies: (Question of power)**
Scalar dimension:	England	Decentralised part of state functions: Policy objective is to downscale responsibility and tasks, such as funding and decision-making practices towards localities; responsibility shift from national to local level	Privileged local scale by national state to engage actors and stakeholders to design flood alleviation schemes, in particular based on their financial contribution; multiscalar state power (EU, national and local), where national level has become less privileged
	Austria	Decentralisation of responsibility from regional authorities, such as bottom-up initiatives. Further re-centralisation process from local to inter-local level, e.g. responsibility of maintenance; state administration and regulatory capacity are centralised	Inter-local scale is favour (not privileged) by national and regional authorities; inter-local scale is encourage to take certain tasks from local and regional authorities, such as administration, communication, negotiation; state power has become multiscalar (EU, national, regional, inter-local and local), especially in terms of regulation and funding; limited power transfer to inter-local co-operations
Territorial dimension:	England	Customization: create new administration boundaries; change of administrative structure according to localities; customised defined responsibility-sharing (depends on local capacity); area-specific organisational relationship and administrative procedure	Concentrations: promoting schemes with the highest value from economic analysis or contribution of local actors and stakeholders (state and non-state); concentration flood alleviation schemes; splintering infrastructure in flood risk management
	Austria	Relative uniform administration and political structure and interactions based on the Austrian Water Law (1959). This include standardised rules for the creation of inter-local co-operations	Redistributive policies, such as funding or implementation of flood alleviation schemes, are organised to equalised between the country in terms of new flood protection projects – no differences between inter-local or local based flood alleviation schemes

Source: own development

Administration centralisation means a concentration of policy definitions towards national authorities. In contrast, administration decentralisation refers to the shift of power, tasks, responsibility and policy definition towards a wide range of different actors, such as public administration units (regional or local ones) and non-state actors (Berkes, 2010; Brenner, 2004; Larson and Soto, 2008; Gualini, 2006). Further an equal spatial strategy foresees that the public administration includes national-wide approaches to define its investments and activities. The encouragement of a central approach includes the shift from a generalised public good approach towards a more single-individual club good approach to promote certain areas within the territory. In the politico-economic discussion, the literature observed a shift from equal towards a concentrated approach in the change of economic policy goals (from Keynesian welfare state towards more cluster-based regional policy) (Meijerink and Dicke, 2008; Brenner, 2004; Thaler, 2010; Swyngedouw, 2004). Influentially, different processes include more individual solutions for the different administration units. The arrangements depend on area-stakeholder specific circumstances (Brenner, 2004; Stoker, 2006). This multiple administration framework encouraged non-state actors to get involved in the ongoing policy discussion (Stoker, 2006) with the consequences of place-specific decisions, especially to secure the local needs and interests (Brenner, 2004). In a more plural-multiple form of scale construction the national government transfer tasks, duties and responsibilities from a national perspective towards higher or lower administrations levels (Martinez-Vazquez and Timofeev, 2008; Larson et al., 2007; Larson and Soto, 2008). In this form, scale is perceived as (relationships, interconnections and interactions) between the different actors over spatial-temporal developments (Massey, 1992; Sayre, 2005; Cox and Mair, 1989), through which power is manifested (Allen, 2009). This stipulates the political processes and interactions between the different actors as central in the production of scale (Cox, 1998; Smith, 1990; Sayre, 2005; Brenner, 2004; Swyngedouw, 2000).

6.2.New governance structure in flood risk management

In this thesis, I assume that politics of scale directly has influences and defines the governance structure (see chapter 2). All interview partners stated that the rescaling process changed the governance structure in the different study sites (see figure 6.21 and figure 6.22).

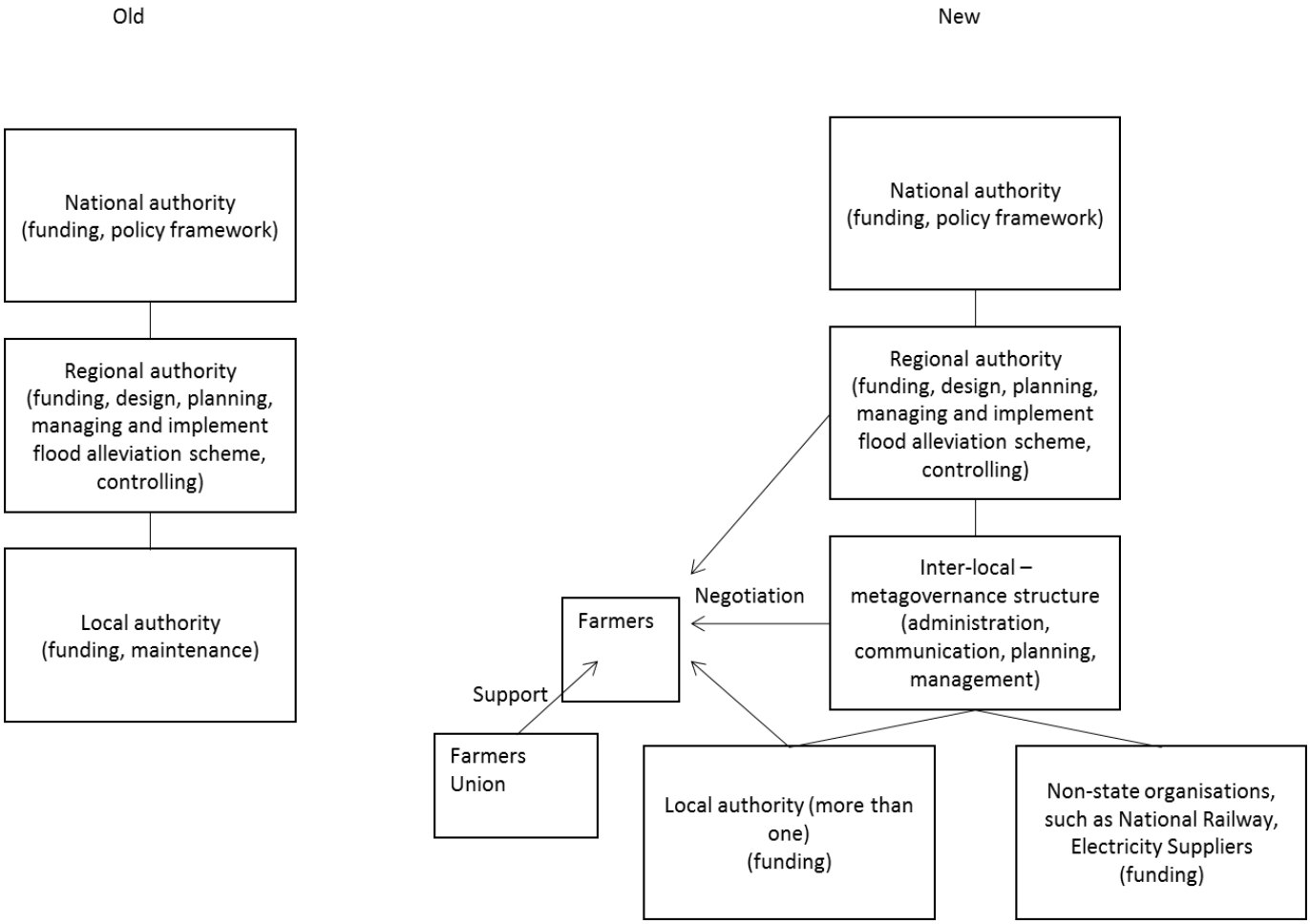

Figure 6.21: Governance structure in Austria

Source: own development

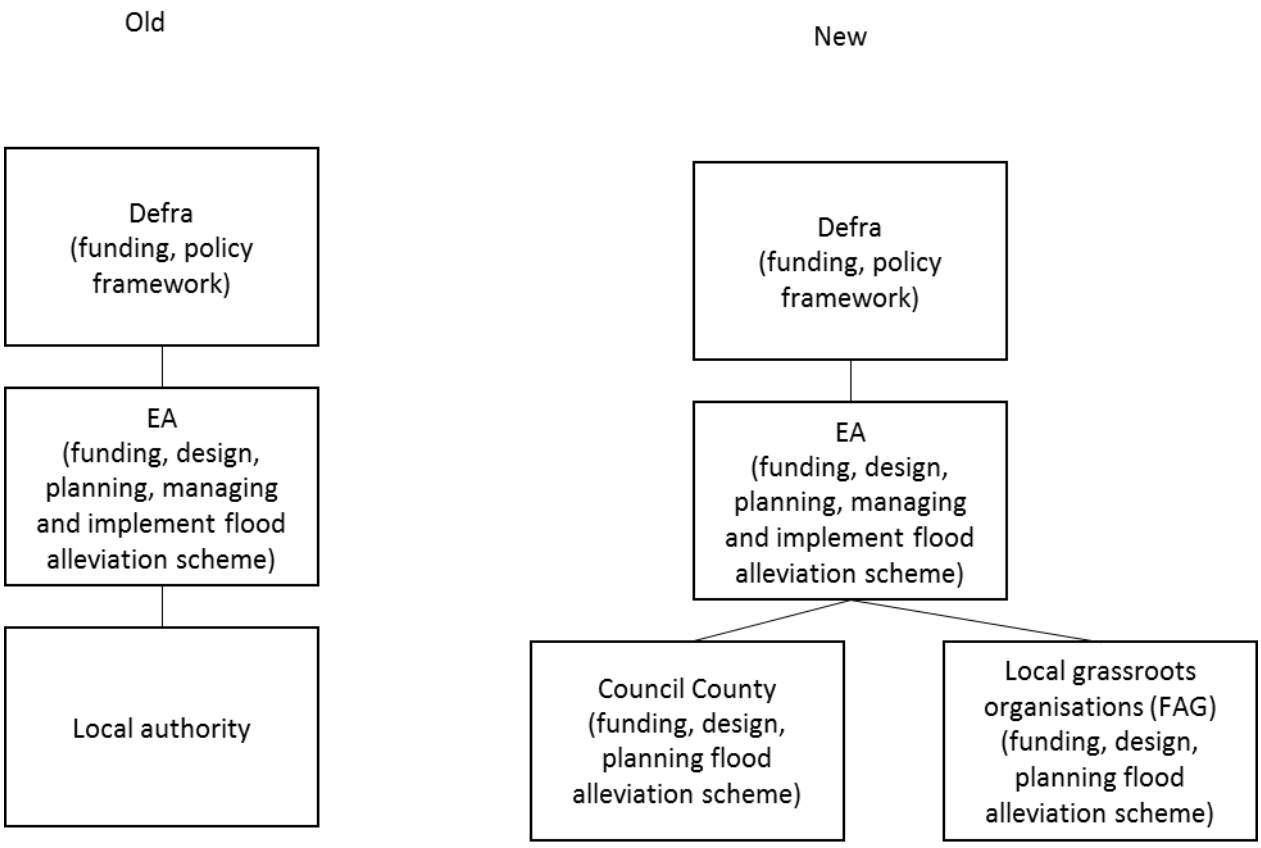

Figure 6.22: Governance structure in England

Source: own development

In particular, the rescaling process increased the number of actors involved in the policy discussion. This had a strong influence on the interaction between the different actors. The relationship includes a wide range of different actors, such as technocrats, politicians, businesses (e.g. Ill-Walgau) and private householders (e.g. Morpeth or Cockermouth). In the Ill-Walgau study site (see section 4.2), for example, a large number of different non-state actors have an important position in the design of new policy instruments with or without consultation with the national government. The Austrian governance structure has a strong focus on technocrat relationships between the different actors. The English study sites include the change in the governance structure mainly for the planning, decision and implementation processes. The relationship includes only short-term and temporal frameworks with the key focus on funding and planning. The EA have taken over the responsibility for the implementation and future maintenance. The consequences for governance building are that

engagement with local scale with their actors and stakeholders is only given for the planning and implementation process.

6.2.1. New administration and regulative structure

Further, the rescaling process leads to a new administration and regulative structures, such as a new chairman and directors in the inter-local co-operation. All interview partners stated that the decision-making is mainly organised by project boards with selected key actors. The Austrian approach includes a formalised administrative structure also for the decision process. Each inter-local co-operation contract includes a regulatory part for the decision process. In particular, the contract incorporates tasks, which can be decided by the steering group and which tasks need a general agreement from all members. The assembly of members includes all those of the inter-local co-operation. Usually two meetings per year are held. In the general meetings the steering group has to ensure the internal accountability of the inter-local co-operation. Further, the key aim is to exchange information between the different members, discuss the general strategy and discuss general questions. The second level (steering group) includes a selection of members from the inter-local co-operation (elected by general assembly). Their key aim is the exchange of information between the different stakeholders (regional and local level), implementation of non-local flood protection measures (mainly flood storages, inclusive negotiation process with local farmers), financial support of local protection measures and negotiation with potential new members. This included a power transfer from general assembly to the steering group to increase the efficiency and effectiveness in planning and management process. Moreover, to achieve these tasks, there is a shift of power from general assembly to the steering group. The steering group meets regularly, approximately every six weeks with representatives from regional authorities. In these meetings they exchange information about the progress of implementation and define the next steps. The steering group is responsible for the implementation of the defined program of measures.

On the other hand, the English study sites include a more flexible-informal and non-statutory administration process and unit. A key reason is the lack of a nationwide regulatory approach. The

overall idea is to build a project board, where the different members design a partnership agreement (i40eng; i39eng; i38eng; i37eng). The EA has the leading role in the overall processes, also referring to the decision-making. The involvement of local actors depends strongly on their resources and availability (see also section 6.4).

6.2.2. New planning practices and processes

A central outcome of new scalar arrangements was the introduction of new planning practices. As discussed previously, the Austrian study sites include the creation of new 'sub-regions' in organising flood risk management. They include an up-scaling process from local municipalities towards the inter-local authorities (or also catchment / sub-catchment authorities). Simultaneously, a downscaling process from regional authorities towards the catchment authorities can be observed. The rescaling processes from both sides include a transfer of power, duties and responsibility from local and regional authorities towards the catchment authorities, with the outcome of the creation of new spatial imaginaries – new identification platforms for policy makers, stakeholders and citizens, such as the Ill-Walgau co-operation instead of administrative ('hard' political) boundaries (Boudreau, 2007; Allmendinger and Haughton, 2010; Heley, 2013). The new politics of scale in the selected countries introduced new state spaces and governance structures (table 6.20).

Table 6.20: Fuzzy boundaries and soft spaces in the selected case studies flood risk management policy

Level	Authorities	Management plans	Fuzzy boundaries	Results from the case studies
Supra-national	EU		International river basin authority	Danube and Rhine (transboundary river basin district)
National	National authorities	River Basin Management plan; inter-regional catchment management plans	River Basin Authorities	Northumbria River Basin District (Morpeth); North West River Basin District (Cockermouth); South West River Basin District (Bridgwater); Danube River Basin District (Aist and Triesting-Tal); Rhine River Basin District (Ill-Walgau)
Regional/county	Regional authorities; County Council; LLFA	Inter-local catchment management plans; shoreline management plans; regional studies	Inter-local catchment authorities; community based approach	Aist Triesting-Tal and Ill-Walgau
Local	Local authorities; LLFA	Local flood risk management plan		Bridgwater, Morpeth and Cockermouth

Source: own development

As discussed previously, the Austrian study sites include the creation of new 'sub-regions' in organising the flood risk management. They include an up-scaling process from local municipalities towards the inter-local authorities (or also catchment / sub-catchment authorities). Simultaneously, a downscaling process from regional authorities towards the catchment authorities can be observed. The rescaling processes from both sides include a transfer of power, duties and responsibility from local and regional authorities towards the catchment authorities, with the outcome of the creation of new spatial imaginaries (Allmendinger and Haughton, 2010; Heley, 2013).

A second result was that the new flood risk management system in both countries enforced stronger networks (coalition). The coalitions between the actors at different scalar construction are an important condition in both countries. Based on the interviews, the results show not only the importance of network connections between actors at the same scale, but refer to the networks between actors, especially with members at local and national level. The local FAG in Cockermouth and Morpeth, for example, developed direct relationships with their national Members of Parliament, who intervened at a national level in their favour (i38eng). The Austrian networks show a strong orientation towards local and regional levels.

A second important network refers to the non-state actors, e.g. citizens or businesses (in both countries). The size of the networks differs in the selected study sites, from small number of actors (Bridgwater) to a large number of actors (Aist, Cockermouth or Morpeth). Furthermore, the networks can be distinguished between formal or informal organisations. Informal networks were identified in the Aist study site, where local municipalities collaborate with the local enterprises to ensure their needs and interests (see below). In this line, the external agendas of economic development and competition play an important role. Lobbying has an important role in the decision-making. The informal-lobbying activities have been especially identified at local levels, where private businesses encourage politicians to provide flood alleviation schemes to reduce the impact of future events. In Aist the motivation of local municipalities in the downstream area was strongly driven by the local enterprises, which were in turn strongly affected by 2002 flood (i14aut). Similar results were identified in England with the local FAG, which had a strong influence in the decision-making (see also section 7.2). Overall, the strong focus on economic growth enforces a higher competition between the different new state spaces (see for example Bridgwater). This includes an informal management and planning process between state and non-state actors (Haughton and Allmendinger, 2007).

A third category includes the delivery framework (Allmendinger and Haughton, 2009). The study sites show that besides official planning documents the different actors developed shadow strategies and planning documents. The Aist study site, for example, introduces in addition to the official catchment management plan (Aist regional study) shadow strategies like the Aist forest management plan. The interviews emphasized informal strategies as very helpful and useful, especially in the development of flood storages. The interviewees explicitly mentioned the difficulties in the negotiation process with the land owners. During the planning process the authorities have had to adjust the planning proposal various times, because land owners were not willing to sell their property and the Austrian legislation allows no compulsory acquisition in contrast to England (McCarthy et al., 2013). Specifically, the lack of compulsory instruments in Austria, means that the negotiation process require higher resource input in comparison to England as well as the higher need of flexible planning instruments. In most of the cases, regional and local authorities offered additionally benefits to achieve the consents from the land owners (i5aut; i20aut; i38eng). The outcomes from these flexible arrangements were later translated into the flood risk management plans. Additionally, I also identified also a 'bottom-up' planning approach. The rescaling process encourages the shift in the planning approach. In the Cockermouth study site, for example, the FAG has created a local flood risk management plan. Similar developments were discovered in the Aist study site, where the catchment-authority developed individual solutions and ideas (i11aut). The aim of these management plans are mainly delivery focussed and allows the actors a greater flexibility in the implementation process. The official planning procedure is different which includes a long preparation time and inflexible operations.

6.3.New network structure in flood risk management

Networks play a critical role in the overall scale constructions and interactions. The two selected countries showed the creation of new network structures along the scalar re-arrangements as a consequence of new scalar arrangements. Further, the rescaling process includes three main forms: up-scaling, downscaling and out-scaling (chapter 2) as well as not always initiated as a top-down

development, for example evidence can be found in the Aist or Cockermouth study site. In the Austrian study sites, the introduction of the inter-local co-operation mainly refers to an upscaling process from the local municipalities towards the inter-local co-operation, and a downscaling process from the regional towards the inter-local level (see also section 4.2.3). The up-scaling process includes the shift of responsibility and regulatory approaches (e.g. maintenance, communication and implementation) towards the inter-local co-operation level, for Ill-Walgau partly towards the regional authority, especially for the negotiations with local land owners (i20aut). The downscaling process allows the inter-local authorities to get more involved and engaged in the planning process. Nevertheless, only the Aist study site uses this opportunity (see section 6.4). For the English study sites, the introduction of partnership funding had a large impact towards the local scale creations. The downscaling process includes mainly changes in the planning and funding process. The local actors are using the opportunity to influence the planning and decision-making process. Nevertheless, the interviewees show that partnership funding required strong support from higher administration authorities, such as County Council and EA in terms of funding and technical knowledge. Furthermore, the countries include also an outscaling process, which refers to the greater involvement from non-state actors, such as citizens and business companies under the umbrella of FAG, in the current flood risk management discussion. The different FAGs have played a crucial role in organising the funding for the realisation of the local flood risk management proposals. Furthermore, both FAGs show a strong influence also in the planning process (see section 6.2.2). The social processes of scaling influenced the negotiation in the different study sites. In the Austrian study sites, the regional authorities and local actors used a trans-municipal level to implement inter-local flood defence schemes. On the other hand, the English study sites focussed their social process mainly on the local communities. The English partnership funding includes a hierarchical relationship between the different actors (vertical modes of co-governance). While in the UK the inter-communal co-operation in the field of flood risk management, for example, is given between some communities across the country. The focus of the policy is mainly based on local solutions. In

contrast to the Austrian results, here the public authorities try to implement inter-communal flood defence schemes. The core of these activities are focused mainly to share resources (human, software), less in joining common flood defence schemes. Nevertheless, Defra announced the introduction of catchment-wide management plans across the country in 1993, which are based on the principles of flood risk management from the Land Drainage Act 1930 (i30eng). During the 1990s, the efforts were oriented towards Shoreline Management Plans (Evans et al., 2002) as well as Catchment Management Plans for the large river basin in England and Wales, e.g. Thames, Humber, Severn, or Trent (i30eng). Yet the catchment management plans resulted in a more general planning document, instead of a strategic co-operation between the different agents. One of the central points of the catchment management plans has been to provide a summary from the different local flood risk management strategies (i30eng) rather than to coordinate the different local flood defence schemes in the catchment. The main explanations for this development are downstream-upstream conflicts, objectives of growth of each individual community (especially today in the ongoing financial and economic crises), or also the lack of political willingness and interest to co-operate between different communities in the catchment (i33eng; i30eng) – at local and national level. Meanwhile as first results show that the new partnership funding created in fact 'more space for non-state actors' (Deas, 2013: 73).

The Austrian inter-local co-operations are defined on a voluntary partnership approach, although the interaction is based on formalised (pre-defined) rules, such as organisation structure, foundation, contract design, defined under the Austrian Water Law 1959. In the Aist and Ill-Walgau study sites, the networks include in addition to the local authorities various non-state actors (business companies and engineering consultants). The outcome processes for governance include a wide range of different people involved in the decision-making practises (see also figures 6.21 and 6.22). On the other hand, the inter-local municipalities have built vertical networks with regional authorities. This relationship is also characterised by a technocratic nature, since civil servants have the main responsibility and work load in this relationship (Perkmann, 2007). The differences

between the two types of networks are that vertical networks are less focussed on the aspect of bargaining and more oriented towards the problem-solving (Rhodes, 1990). A second key vertical network is the collaboration with the regional farmer unions. The farmers union plays a central role in the negotiation process and agreement with local landowners (i5aut; i12aut). It has a close well-established relationship with the local farmers. Furthermore, the farmer union has knowledge about the legal impact of the flood storages for the farmers in terms of income and pension (i5aut). A further vertical network was identified in the Aist study site for its funding. The Aist co-operation uses European funding resources (Leader program) to realise its flood risk management plan. This relationship was established after the creation of a co-operation, as requested by the European Commission (i9aut). This also enforced the shift of power from national and regional levels towards international scales (Späth and Rohrbacher, 2013).

The three English study sites show broad local networks, especially in the two parish councils Morpeth and Cockermouth. These two examples have given a strong weight of non-state (civil society) actors (ibid.). The non-state actors established various local and horizontal networks towards private consultant businesses and national actors, like Members of Parliaments (i36eng). Additionally, the different study sites show further networks at local, regional and national level. The most important network is that with the County Council. In Cockermouth, the FAG established a local network with the EA. The relationship with the Cumbria County Council is given by the EA, where the relationship shows the technocratic nature of the co-operation. Here, the main workload is organised and managed by civil servants (Perkmann, 2007). The consequences were that these network relationships between civil servants (technocratic networks) are more stable in contrast to networks with politicians and non-state actors, stakeholders and citizens (Rhodes, 1990). In addition, both FAGs developed vertical networks mainly with Members of Parliaments and the NFF. However, the empirical data demonstrated that the quality of networks depends strongly on the interests of the local FAG. In Morpeth, for example, the local FAG uses the national level to intervene for the realisation of the local flood defence scheme. The main networks in the study sites are established

with technical experts from the public administration. The aim is to provide a strong technical support in the management process and -in a limited form- of knowledge transfer. Nevertheless, the leadership in the overall discussion are still organised by technical experts (EA and regional authorities). As a drawback, the networks often lack a formal conflict resolution mechanism. The networks play an important role in the participatory process in the planning and decision-making. First, the networks give different local actors a common voice to satisfy their interests and needs. Second, the local networks provide to the local actors technical knowledge and expertise to interact more successfully with the public administration. Third, the building of local networks replaces in part the missing conflict resolution mechanism.

The disadvantages of the involvement of local actors in the planning and decision-making process are the additional costs and resources required, because of the longer negotiation and communication processes (Irvin and Stansbury, 2004). For example, the Triesting-Tal negotiation process took more than 10 years to organise a common inter-local flood risk management concept. The main barriers were: first the parochial politics of the local authorities and second the regional BWV counteracted to the project (i7aut; i8aut). The outcome of the negotiation process was an increasing of transaction costs without improving the management concept. Similar problems are observed in the Aist study sites with the result of free riders in the study site (see section 4.2.4). The costs strongly depend on the number of actors in the process, e.g. costs of co-ordination, joint decision-making etc. based on the Scharpf's law (Birner and Wittmer, 2004).

Further networks were identified between the local actors with universities and private consultant groups, especially in the cases of Cockermouth and Aist. Both study sites collaborate with higher education institutes or consultant group for knowledge transfer and to increase the reliability of their local initiatives. The universities and private consultant groups have a significant role in gathering and distributing information and technical knowledge towards the local actors. For example, the Aist co-operation developed their forest management concept based on the

recommendation of the University of Natural Resources and Life Sciences of Vienna. Similar co-operations were established in the re-evaluation of the flood risk management concept in 2012. In this instance, the universities and consultant groups demonstrate strong trustworthy competences. Finally, the local actors use their vertical and local networks to ensure their interests. Here, especially the scale jumping allows local actors to change the power relationships. In most of the study sites, I identified more horizontal linkages than vertical, mainly when local actors are strongly involved in the planning and decision process. This includes a change in the decision-making power towards local actors, too (Allen and Cochrane, 2007).

6.3.1. Formalised network structures

The type of network organisations ranges from highly formalised co-operations based on legal contracts under public or private law to informal meetings and agreements, such as exchange of experiences and knowledge. The strategy of the inter-local co-operation is the use of mainly formalised contracts between the different members of the co-operation. The reasons for selecting formal arrangements are based on various considerations, like time framework, objective and aim, and legal framework. Further, the inter-local co-operation included new administrative structures, inclusive juridical structures (Medeiros, 2011; Wirth et al., 2008). The consequences are that the highly formalised co-operations are strongly regulated between the different members. Here the local actors sign legal contracts (under private or public law) to ensure the sharing of tasks, duties and responsibilities between the different members. In terms of organisation, the co-operation contracts include various defined standards and rules, e.g. annual numbers of general assembly meetings, sharing costs between the members or voting systems. In between these two extremes, there are various different approaches, like common arrangements between local authorities, or sharing resources, or development of common joint projects, inclusive of common funding. The high degree of formal arrangements provides legal security for all involved members in the co-operation process as well as to ensure accountability and legitimacy. The key work is the purchase of land, defining and signing of formal contracts with construction companies and farmers

The English interviews also showed mainly formal arrangements between the different actors. The highly formalised co-operations are mainly to ensure the legal requirements (EA, 2012b) as well as the aspect of accountability (i40eng). The essential points are that the contracts define each actor's rights and duties, especially relating to their role and deliveries as well as the financial contributions of each agent. Furthermore, the contract ensures and defines all deliveries by each stakeholders as well as their role in the process. Under these regulatory conditions, the various actors build a formalised project board (similar to the 'old' system) to plan, decide and implement the flood defence scheme. In the Bridgwater study site, the partnership agreement contract is more complex compared to the other two study sites. Nevertheless, the partnership approaches includes loose and quite flexible relationship, such as no regular meetings between the different actors and stakeholders, no rule about representations without a clear labour division or responsibility-sharing between the members of the co-operation. This type of relationship has been understood as a flexible construction to arrange common activities between the different actors. The regulation process however as well as type of sanction is quite weakly organised and defined. These observations indicate that the partnership approach is mainly organised by funding and not in a broader sense of a regulatory meeting board, such as the Austrian case study. As observed in the empirical results, the partnership funding changed the regulatory (formally and informally) duties and norms.

Overall, the politics of scale in the English's study sites acts mainly on its political-artificial boundaries, e.g. the town council. This has a strong implication for governance structures. Governance, which are defined by people and their interaction (see chapter 2), include a much lower number in comparison to the Austrian case study, where the national and regional authorities have to collaborate with more than one local authority (see also table 6.20). As further outcome is a different type of partnership approach, instead of a strong horizontal partnership approach (Austrian case study), the co-operation is mainly focussed on vertically relationship between national and local level. The institutions and organisations are strongly based on local units rather

than at cross-boundary policies (Cochrane, 2012; Harrison, 2012). I found a strong competition between the local authorities for national funding does exist that in the flood risk management debate at regional and local level (i30eng). On the other hand, the English results show multi-scalar approaches, mainly in the planning and the financing process in flood risk management. The two study sites Cockermouth and Morpeth show the interaction of multiple actors.

6.3.2. Types of networks

The study sites show various types of relationships and network power (Allen, 2009) between different private-public actors and stakeholders (table 6.21). The following table summarises the main relationships between state and non-state actors and stakeholders present in the study sites (see following quote).

> Participant: 'They have now: a tax advisor for the financial problems, they have an external director and they have a private planning office' (National Authority, Austria).

While examining the interviews, the participant described a wide range of different relationships between the main actors and stakeholders in the study sites. Further, each study sites show more than one type of relationship, based on the interests, objective and tasks. The Cockermouth study site, for example, has various networks with different actors and stakeholders, such as with private consultant groups (market relation) to develop business appraisal and informal relations to Member of Parliament to ensure their needs and interests (scale jumping). The distinction between the mechanism and relationships are 'ideal types', which in reality are generally more complex (Tödtling et al., 2006; 2012; Trippl et al., 2009). Tödtling et al. (2006) use two main dimensions to characterise the relationships and the mechanism within a co-operation. The first dimension includes the interaction between informal and formal relationships, such as state-non-state co-operation in the Aist study site or relationship between FAG and national and local authorities in the Morpeth study site (see also section 6.3.1). The second element includes the mechanism of interaction (static or dynamic). A static mechanism includes the knowledge transfer from an external source (e.g. consultant or academic institute) to the local actors, such as inter-local co-operations or local FAG

whereas a dynamic process has been seen as a more interactive approach within the co-operation, especially for the formal and informal networks of each actor.

Table 6.21: Summaries types of relationships in the study sites

	Static	**Dynamic**
Formal	Market relations (1) • All study sites with private consultant or research institutes	Formal networks (2) • Aist, Triesting-Tal, Ill-Walgau, Cockermouth and Morpeth: collaboration contracts • Austrian study sites: shared resources of facilities (e.g. administration)
Informal	Knowledge transfer/spillovers (3) • Aist: recruitment of a specialist (executive director)	Informal networks (4) • Aist with Regional Highway authority • Cockermouth and Morpeth: FAGs with Members of Parliament • Morpeth: FAG with EA and Northumberland County Council • Bridgwater: Sedgemoor County Council and the EA

Source: adapted from Tödtling et al. (2006): 1038

Market relationships are mainly present between the local FAG and inter-local co-operation. This consists of mainly 'buying' knowledge and expertise from consultant groups or academic organisations or of 'buying' service tasks. Examples of this in the study sites are construction works or supports for the negotiation process with local land owners (see Ill-Walgau study site). Most study sites displayed some evidence of a market relationship. In particular the Austrian study sites show a close relationship with consultant groups and academic institutes as well as private construction companies. Main reason is that the inter-local co-operations have the responsibility for the implementation and the future maintenance of the assets, which is different in the case of England, where the EA is responsible for the future maintenance of the assets. Furthermore, the Austrian study sites show knowledge transfer, mainly technical knowledge such as types of flood alleviation schemes, return periods, type of flooding and impact etc., between the regional authorities towards the inter-local co-operations (i9aut), especially a one-way process (mainly hierarchical organised). Among the market relations only the Aist study site recruited an external specialist in monitoring

and supporting the management process. The overall goal of the executive director is to support the local politicians in the management process. Furthermore, this person is involved in the negotiation process with local land owners and construction companies. The advantage is the technical and knowledge support for the local policy makers, with the consequences that inter-local co-operation developed individual concepts for flood risk management (i9aut). This step includes also a step forward in the professionalism in the inter-local co-operation and a better position in the management process.

Networks (formal and informal ones) are very important in the overall management process (see also section 6.2.2). In summary, the different study sites show a large variety of different interconnections with local, regional and national state and non-state actors. Austrian's study sites include a highly formalised network system between the different members in the inter-local co-operation (see section 6.3.1). Apart from the formal contracts, the three study sites also include sharing information, skills, personnel (mainly administration structures), software programs and data. The empirical results also include informal interactions among the different actors. The Aist study site shows an informal linkage within the Regional Highway Authority. The network is mainly based on a common interest and informal financial agreements. In Morpeth and Cockermouth key links are with the national authorities (see section 4.2.10).

6.3.3. Network size and membership

Membership is a central factor to assess and to understand the policy network. The size of the networks strongly influences the grade of formalisation, organisation of structures, resource inputs and policy outcomes (Hutter, 2014). The empirical results show that larger networks tend to a higher grade of formalisation compared to small networks (see section 6.3.1). Similar outcomes are found in the organisation structures; also here larger networks tend to develop steering groups. In particular, the Austrian study sites mainly constructed steering groups to increase the efficiency and effectiveness within the network in terms of defining and delivering policy goals. On the other side, larger networks create higher transaction costs, particularly due to increase of communication

processes between the members of the co-operation (see also section 7.1.4). Finally, the network size also influences the expectation of the output (ibid.). However, the empirical results manifested no evidence that larger networks improve the flood risk management plan (see also 7.1). The networks different study sites were outlined in table 6.22.

Table 6.22: Overview of the characteristics from the study sites

	Study site A: Triesting-Tal	**Study site B: Aist**	**Study site C: Ill-Walgau**	**Study site D: Bridgwater**	**Study site D: Cockermouth**	**Study site D: Morpeth**
Number of communities	13	29	12	1	1	1
Number of members (co-operation)	12	27	20	2	5	4
National/regional organisations	WLV/BWV	WLV/BWV	BWV	EA	EA	EA
Initiative	Top-down	Bottom-up/top-down	Top-down	Top-down	Bottom-up/top-down	Bottom-up/top-down

Source: own development

First, the key differences refer to the number of communities and involved members. The study sites include one to 29 local authorities in the partnership approach. Moreover, most of the examples demonstrate linkages to non-state actors and stakeholders, such as small-business companies, utility companies or private householders. On the other side, the Aist and Triesting-Tal study sites show the challenge of non-members (free riders) within the inter-local co-operation process with the consequences that the non-members get the benefits from the co-operation without contributing (financially) to the costs (Baumol, 1952). Second, key differences between the three study sites are the involvement of regional organisations in the inter-local co-operation. A third aspect refers to the initiation process. The Aist, Cockermouth and Morpeth study sites, in contrast to the other three study sites, includes a strong bottom-up approach in the development of the inter-local co-operation. The main reason is the strong engagement of local grassroots organisations and policy makers in decision-making practices.

6.3.4. Interests

Interests play a crucial role in the policy process and policy networks, also because all involved actors follow different ideas about how to solve a certain problems. Therefore, main attributes are (1) conflicts between the different agents or groups and (2) questions of power between the different actors (Lukes, 2005). Interests can be understood as a dependent variable (normative judgements with a moral and political character (ibid.)) – depending on the individual socio-economic structures. Following this line, interests are highly dependent on social construction and should not be seen in absolute terms. The consequences were conflicts between the different actors, stakeholders and citizens, because conflicts are related to the problem of different individual interests. In respect to flood risk management each stakeholder group follows different interests, such as structural flood defence measures (e.g. dams and dykes – also for legitimacy reason) to reduce the vulnerability of a flood event, or in general to build new and more houses in floodplain areas. In the same time, with the implementation of WFD, European countries have to ensure the good ecologic status of each water body until 2015, e.g. re-naturation of river banks and restrictions in land use management.

Based on the work published by Posthumus and Morris (2007), this thesis classified actors, stakeholders and citizens into five groups of interests (figure 6.23):

- Maintaining economic livelihood,
- reduce probability of future flood events,
- reduce future damages,
- protection and creation of habitat areas and
- reduce flood risk to people.

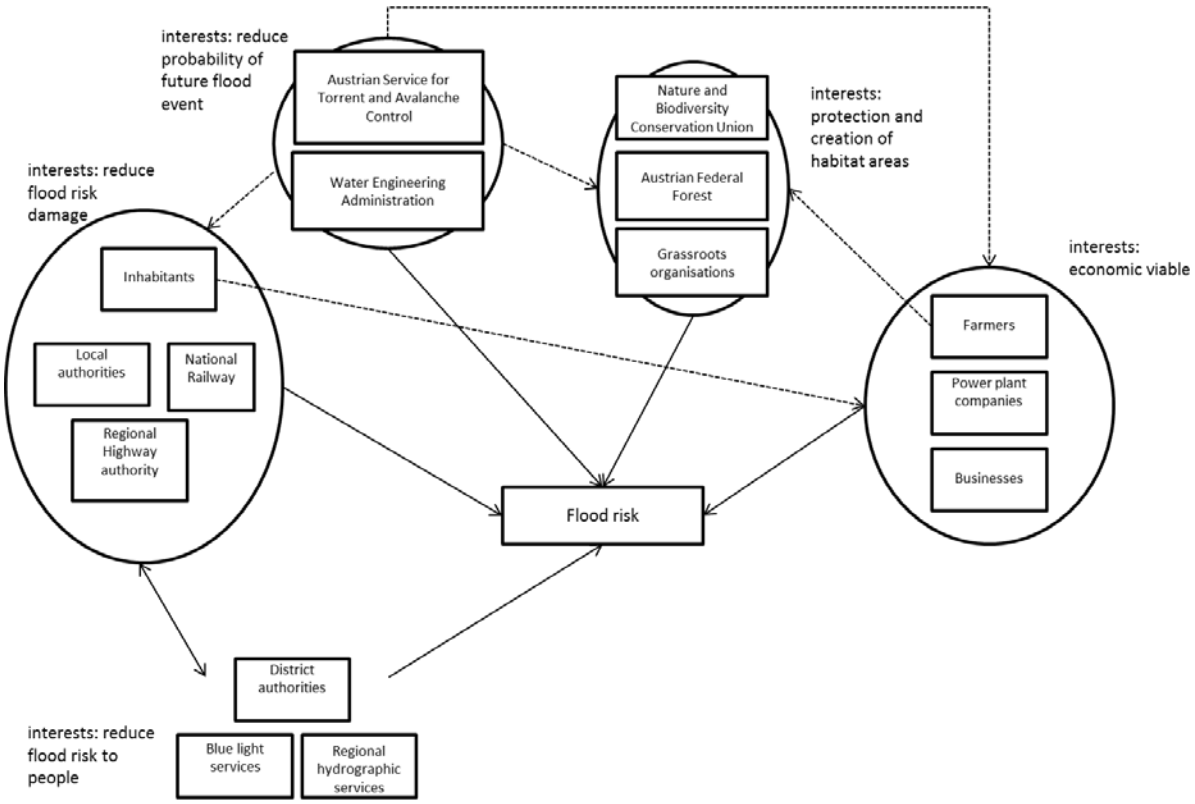

Figure 6.23: Stakeholder overview in the Austrian case study

Source: own development

In reality some of the stakeholders may follow more than one interest. As in Austria an important agent is the landowner and the residents who are living in risk areas or have a property in risk areas. This group is mainly affected by any flood defence discussion and who are interested to have a flood defence scheme to protect their property or to restrict the land use by the stakeholders from the policy or operational responsibility level. The involvement of landowners strongly depends on their interests, but in general they have a high power to stop or to change flood defence schemes in Austria, because the lack of compulsory purchase (see section 6.2.2). In the English case study, the interviews emerged that key players are local grassroots organisations, mainly FAG (see figure 6.24).

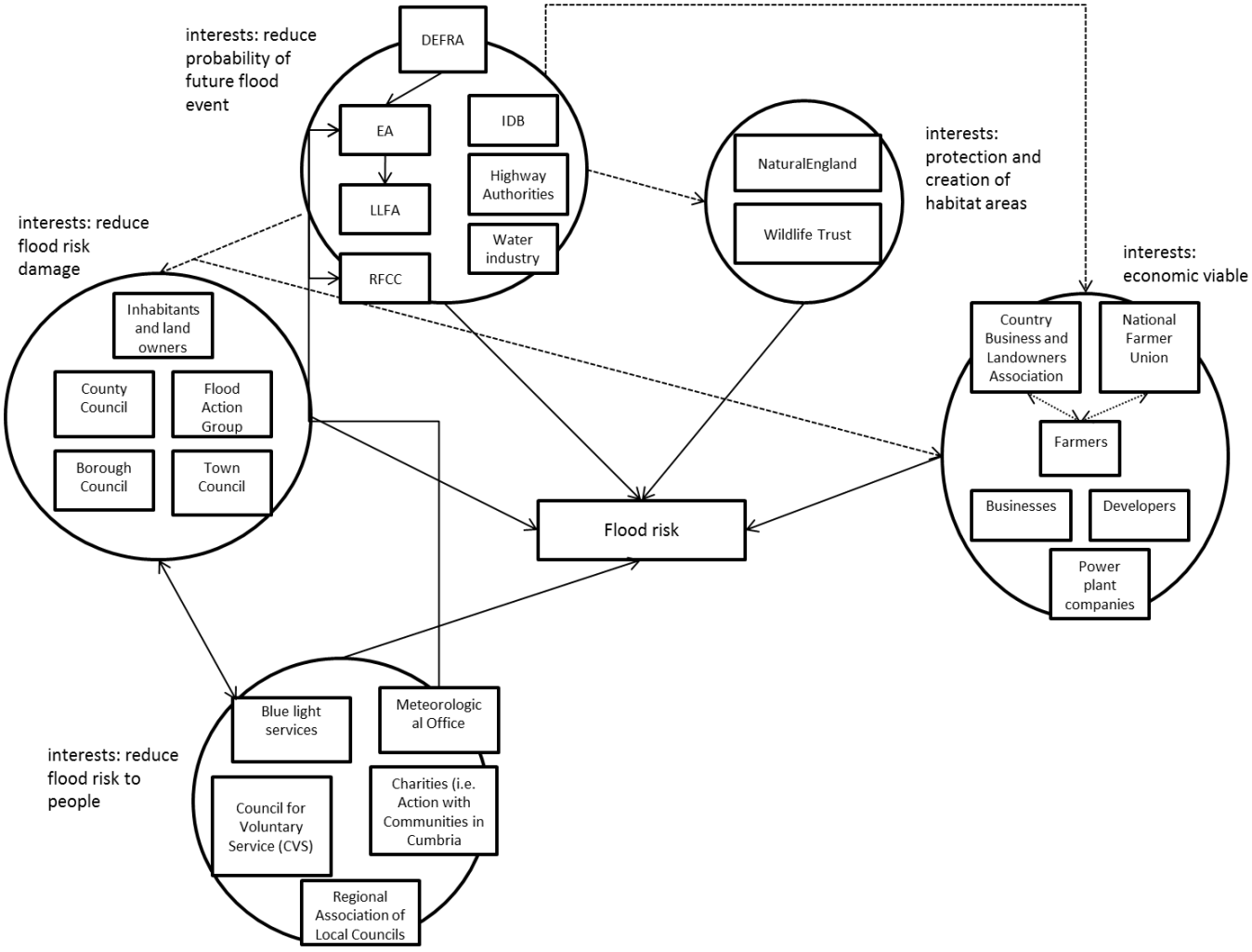

Figure 6.24: Stakeholder overview in English case study

Source: own development, based on Posthumus and Morris (2007).

FAGs are organised by private households or local businesses. The different FAGs are supported by the NFF with the aim to support private households in the recovery phase after a flood event. The interviewees mentioned the important role of the FAGs also in the assessment and mitigation phase. In the local flood risk management discussions the FAG has had a strong role in the overall debate. Today, the FAGs can be seen as a lobby and pressure group, depending on its members. Their objective has often been the implementation of high flood defence standards in their community. Other important stakeholders are private businesses, such as developers. In the study site of Bridgwater, the private businesses are the primary funding resources for closing the funding gap.

The results show that private businesses play a critical position in respect to partnership funding policy (further discussion see section 7.1.3).

6.3.5. Power

The figure below summarises the results from the Austrian case study.

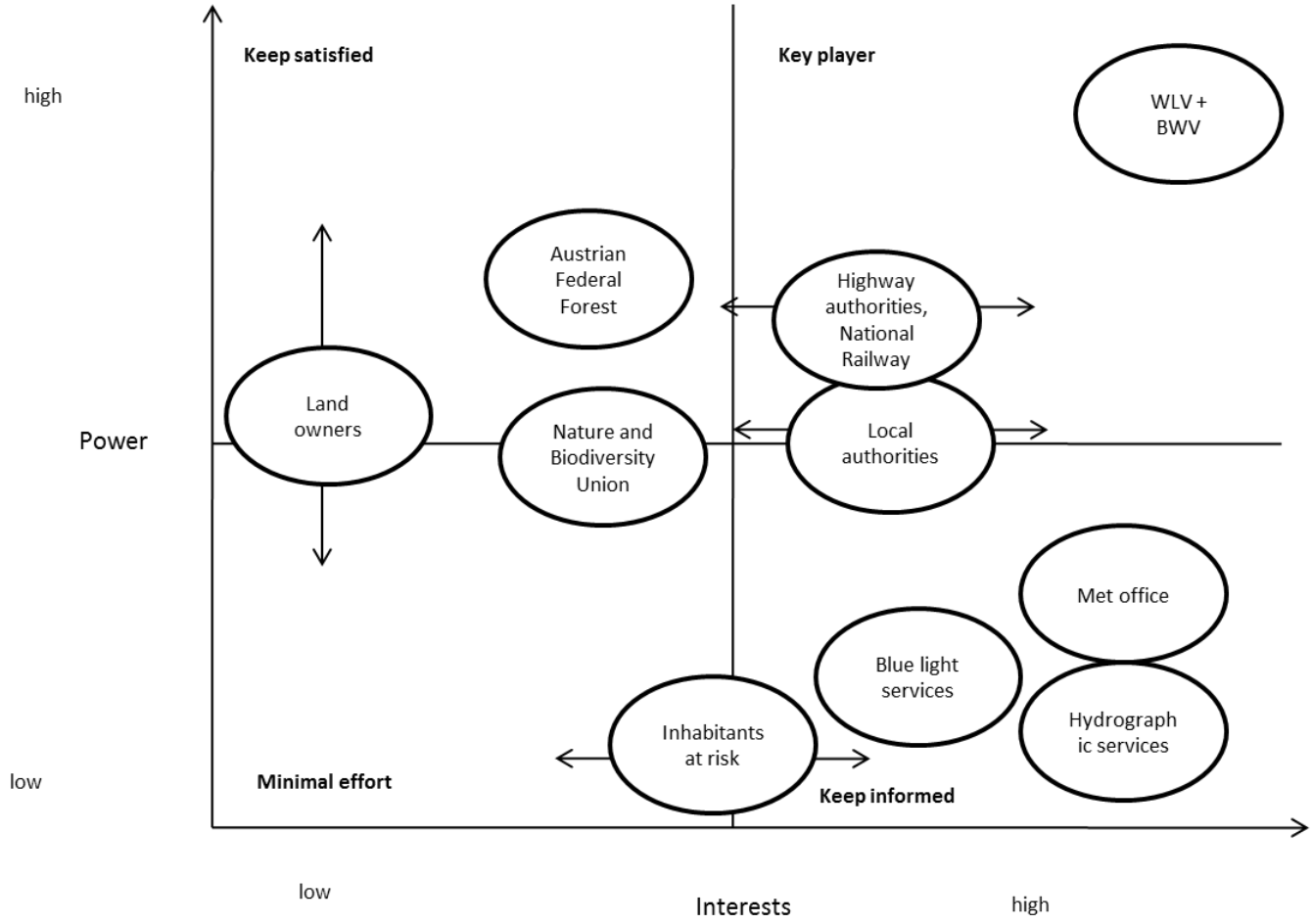

Figure 6.25: Power and interests positions in Austrian case study

Source: own development

The key players in the three study sites are the WLV and the BWV. Both organisations are leading flood risk management policy. They also have the knowledge, expertise and power to influence the current policy discourse. The local authorities also have an important role to play. However, their interests and contributions depend strongly on, whether they are involved in the decision process or not. Nevertheless, the result shows also here a broad range between the three study sites. The engagement and influence of inhabitants at risk depends on the individual awareness (risk and

environment). If the inhabitants show high risk awareness, they are more likely to participate in the process. It was observed from the interviews, that participation engagement often starts with concerns about the flood defence measures and not solely based on the flood risk (i12aut; i13aut; i15aut). However, the interviews mentioned a general low stakeholder engagement in the three study sites, with some exception of in the Aist study site (see section 6.4). Further central stakeholders are business companies (i10aut).

> Participant: 'The two companies [name, name] were strongly affected by the 2002 flood event. However, they have received massive support in terms of financial compensation. So, their pressure were limited, but still a strong motivator for the major to be active' (Regional Authority, Austria).

This quote indicates that generally, businesses demonstrate a high interest and influence in the policy decision-practice until their needs are fully satisfied. In the study sites, private companies show a strong pressure after frequent flood events or restrictions in business investments. In particular, in the Aist study site private businesses had a leading role in the creation of the inter-local co-operation (see section 4.2.4). However, they were not a member or did not influence the catchment-management plan. Their key purpose was the implementation of flood alleviation schemes to reduce the vulnerability in the catchment, specially to protect their plants. Generally, the companies have a strong power in the region, because in most cases they are the largest employer and taxpayer in the region. A similar development can be observed with the implementation of flood storage on farmland. Farmers have the power to block the implementation process. However, their interest depends strongly on whether they are directly affected by flood defence measures. In the study sites, the inter-local co-operation have to re-design frequently the catchment-management plan, because the lack of support from farmers; use of soft spaces in planning processes (Allmendinger and Haughton, 2009). In sum, the power and influence of farmers is very high (see following quote).

> Participant: 'With the small flood storage projects we had only a few problems, especially with some detail questions, but in the whole it was not the big problem. The approvals we had relatively quickly in an open and transparent procedure. We didn't use more than three meetings: prior information, an update meeting and final meeting with the clear message if there is consent or not. With some farmers we singed directly on the table, with some others we had further negotiations and then we got the necessary signatures. With the large flood storage projects we followed the same process, but

in the final meeting we had three agreements and five against the project, and with this number you cannot realise the project. We accepted the final decisions, we weren't angry with anyone, but the expectation was that all was dead now, no it isn't dead, we will think about how to organise and to deal with this situation' (Local authority, Austria).

Participant: 'obviously there were variants already planned, but there is always that one plan does not come through and there we have to adapt it, but until now we have still managed in a slimmed-down version to achieve our targets (Regional Authority, Austria)

Based on the figure 6.26, literature and from the interviews, this study distinguished the different stakeholders into four categories of the power-interest matrix.

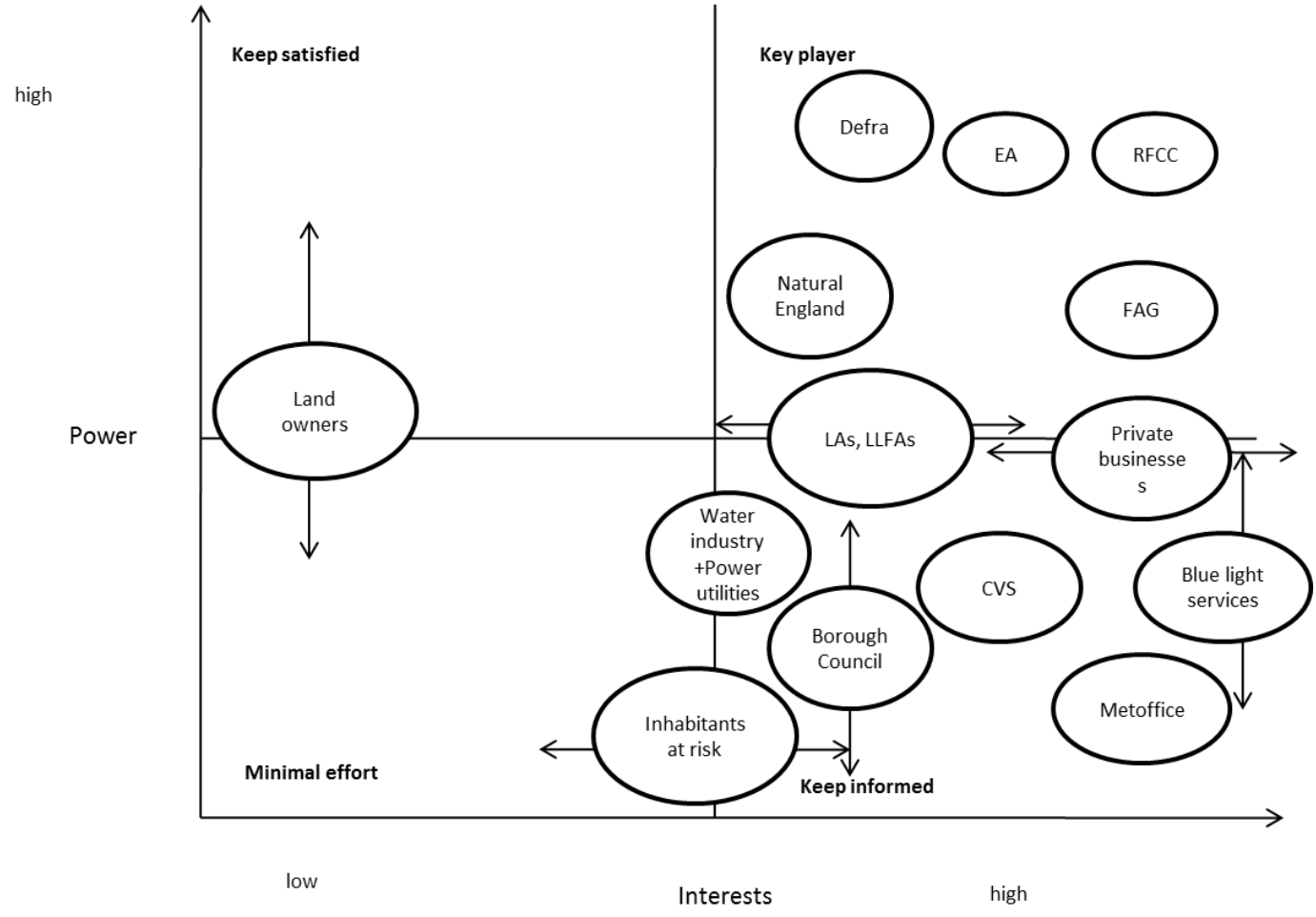

Figure 6.26: Power and interests positions in English case study

Source: own development

From the interviews it emerged that the key players are the EA and partly the RFCC and Defra. Defra has an overall key position, because it defines the current policy direction and provides the funding scheme from the national government. The RFCC has a strong power in the current flood risk management discussion; mainly the committee has the power to reject flood defence schemes.

Furthermore, they provide a small contribution in the overall flood defence schemes (with the local levy). The EA has an important role in the overall discussion, i.e. the negotiation with third parties and technical expertise. Apart from this role, the EA is a key actor, because it owns the flood defence schemes and is responsible for maintaining them. From the different study sites, the results show that different stakeholders are involved in the discussion or have different positions in the power-influence matrix. An important agent is the FAG, especially in the Morpeth and Cockermouth study sites. In both study sites they show a high interest in the development and realisation of a new flood defence schemes for its community. For example, the Cockermouth FAG organised external funding of £400,000 to close the funding gap (i36eng). In the case of Morpeth, the FAG plays a dominate role in the discussion because of its network and interactions with different public authorities (locally and nationally) (i38eng). The formation of the FAG is often based on recent flood histories, especially as a reaction of frustration in well educated and wealthy areas (i36eng; i34eng). 'Being heard' is a central problem in flood risk management (see following quote), where local level have the feeling of not been listen by policy makers (similar problems can be found in spatial planning, see also Allmendinger and Haughton, 2012).

> Participant: 'And again we didn't see anybody, there was no help, and that's when I decided, that's it, not standing for this anymore, so I created the [name]f because I felt we were unique in our problems and we needed to highlight' (Local actor, England).

The role of the land owners is a key aspect in the Morpeth case. The landowner forced the EA to change the 'original' proposal with the result of various restrictions of the EA in the use of the flood storage and the area across the dam (i42eng). The public authorities, especially the County Councils have a strong position in the actual policy discussion. In the two study sites (Morpeth and Bridgwater) the key leaders in the policy discussion are the EA and County Councils. The interviews showed that the position of Sedgemoor Country Councils have a stronger role in the overall discussion, since there is no local FAG. In the Cockermouth study site, the County Council had a less important role, because it was replaced by FAG. Here the County Council provides a large contribution to the realisation of the flood defence scheme. Analysing the interviews from the

Cockermouth study site, the County Council has more a passive role in the overall discussion. The role of private businesses largely depends on the case study. For example in Cockermouth study site, the private businesses show a higher interest and contribution in the local flood risk management debates. A large number of businesses take part of the Cockermouth FAG. One reason is the business structure, mainly local small-medium businesses, as well as the socio-economic structure of the town council (i36eng). In Bridgwater, private businesses have an important role in the current local flood risk management debate (i40eng). However, the literature already indicates a lack of a 'leading agency' in flood risk managements in England, especially relating to the maintenance of flood defence schemes (Coulthard and Frostick, 2010).

6.4.The governance networks in the flood risk management process

Scalar arrangements have not only a direct influence tothe governance, but also influence the task and responsibility-sharing between the different scales. To apply the theoretical discussion from chapter 2 in flood risk management this thesis analysed the changes in governance as the change of level of activity and self-realisation between the different key actors and stakeholders at national, regional and local level in the policy decision-making practices. This has a direct influence in the network relationship and level of engagement and interacting between these different groups. By analysing the literature (Fairtlough, 2007; Ingstrup and Damgaard, 2013) and the empirical results I distinguished four key characteristics to analyse the changes in the role of various actors and stakeholders in the new scalar arrangements (table 6.23) under three ideal types of organisations (hierarchical and heterarchical structure and responsible autonomy), which will now be discussed in more detail.

Hierarchical structure: regional authorities play a crucial role in the organisation of the partnership approach. A key aim for inter-local co-operations, for example, is to develop the co-operation and initiate the project proposals for flood defence schemes (develop a project appraisal, ensure funding from regional and national sources, organise all approval needs for the realisation of the project). During this stage the national and regional authorities are the project leaders, who also define the

conditions with the members, e.g. costs sharing between the members. The focus is to find and integrate potential members (state and non-state actors) into the partnership approach. Building trust is important, especially between members who have never collaborated in the past. The overall tasks are to organise seminars and meetings, especially to communicate the potential hazards and risks, define problems and find common objectives and measures. Furthermore, key tasks are to organise and ensure financial support from regional and the national authorities. Since the regional authorities are foreseen as project leader and manager, the key requirements are managerial skills at regional level.

Heterarchical structure: there is a shift of tasks and competences from national and regional authorities to the local actors and stakeholders. The key role of national and regional authorities is to build and ensure the relationship between the members, especially to avoid a disintegration of the co-operation. An important aspect is the shift in relation to the aspect of trust (from trust building to trust expansion). Ingstrup and Damgaard (2013) defined this shift as an important growing phase in the inter-local co-operation (from actor bonds to social bonds and later to professional bonds). The role of the national and regional authorities shifts from project initiator to project supporter. The shift in competences refers mainly to aspects of soft skills, e.g. communicator or problem solver. Relating to tasks, the national and regional authorities are focussed on the project monitoring and controlling instead of project planning at this stage.

Responsible autonomy: consists of an additional shift of tasks and duties from national and regional authorities to the members of the co-operation. The key focus of national and regional authorities is to support the co-operation. However, their key tasks are still project funding and controlling (financial and implementation).

Table 6.23: Level of activity and self-realisation

	Hierarchical structure (Type 1)	Heterarchical structure (Type 2)	Responsible autonomy (Type 3)
National and regional authorities role	• Networker and project initiator and manager	• Relationship builder and project manager and supporter	• Integrator and project supporter
National and regional authorities focus	• Project leading • Framework conditions • Trust building • Locate and integrated new actors in inter-local co-operation process	• Trust expansion • Project support	• Supporting • Trust exploitation • Project support
National and regional authorities competencies	• Communicator • Networker • Technical expertise • Managerial skills	• Analyser • Problem solver • Communicator • Technical expertise • Networker • Managerial skills	• Communicator • Technical expertise • Managerial skills
National and regional authorities task	• Project planning and appraisal • Project monitoring and controlling • Funding • Branding • Seminars and network events	• Project monitoring and controlling • Funding • Seminars and network events • Branding	• Project monitoring and controlling • Funding • Seminars

Source: adapted from Ingstrup and Damgaard (2013): 569

The EA is the key actor in the English flood risk management discussion. In the past years, the EA changed their policy discussion. The previous EA approach foresaw a strong top-down approach in the decision process with no or minor engagement by local agents (i31eng). Main reason was the fear to lose power with the consequences of no pro-active relationship and engagement with the local scale. However, the new scalar arrangements changed not only the position of local scale but also of the national scale. The engagement of local scales forced national authorities to co-operate with local actors and stakeholders (i38eng; i37eng; i36eng). In Austria, the regional authorities (WLV and the BWV) play a crucial role in the development and management of the inter-local co-operation process. Firstly, the national and regional authorities have the technical expertise, the regulatory power (e.g. they approve the flood defence scheme) and the financial resources to realise flood defence measures. Based on the characteristics of different levels of engagement (see chapter

7), the study is using a conceptual framework to understand and to evaluate the roles of national and regional authorities over the different stages and maturity of the inter-local co-operations.

The national and regional authorities have a dominant role in the flood risk management process in the three different study sites in Austria. The inter-local co-operations are generally passive actors in the regional flood risk management process. Key reasons are the lack of technical knowledge and experiences as well as missing interest. The emphasis of the inter-local co-operation is primarily the operational implementation of the catchment-management plan, e.g. negotiation with farmers and signing contracts with construction companies. The Aist study site, on the contrary, shows a more active role in the flood risk management discussion, because of the high interest of the local leader (i12aut; i15aut; i13aut; i14aut). However, the steering group has the key role in respect to strategies or processes. These efforts are strongly supported by the regional authorities, e.g. through technical knowledge transfer or financial support. Nevertheless, the regional authorities are still dominant in the processes. In summary, two study sites (Ill-Walgau and Triesting-Tal) are shown to be at an early stage in the inter-local co-operation life cycle framework. In contrast to them, the Aist study site can be described in the second stage. However, the regional authorities have still to provide an enormous input into the discussion. Behind the technical knowledge, their focus is on the problem solving, communication and networking. I observe a change in the role of the regional authorities from engineer experts to project managers.

Figure 6.27 provides an overview of the results from the two countries. In the Aist and Cockermouth study site, I observed sign of a bottom-up management system. In contrast to the other study sites, where the national or regional authorities provide the flood risk management plans – top-down management system. Additionally, an increasing maturity within the Ill-Walgau study site emerged during the interviews, especially for the next years. The Triesting-Tal study site, in contrast to the other two study sites, shows a low degree of maturity of the inter-local co-operation. In the English case study, the two FAG communities show a high degree of interests, experience and knowledge in the ongoing policy discussion, especially the Cockermouth study site.

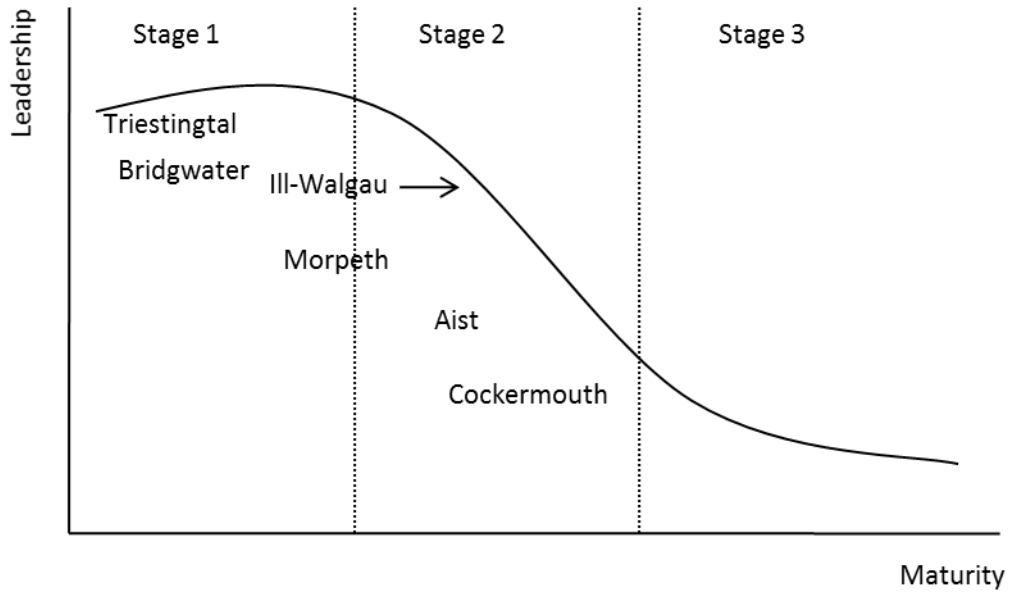

Figure 6.27: Role of national and regional authorities and local actors and stakeholders in partnership approach

Source: own development

In summary, four of six study sites are characterised by the early stage (type 1) of the partnership life cycle (Martin and Sunley, 2011). The lack of self-responsibility is the result of a strong role of the national and regional authorities.

The Cockermouth partnership funding scheme is characterised by high level of self-realisation, management and initiation by local actors. Local actors show a high interest, knowledge and resources in the developing of a flood defence scheme in their town. In particular, the key local actors are proceeding through the local FAG. In the past years, they changed their relationship and co-operation with the EA – from a lobby group towards an equal partner. This point is essential in a partnership agreement. Although the EA is still a key player in the discussion, for example, in the negotiation with different actors like Cumbria County Council. Challenges were the lack of trust and concerns between both actors (i37eng; i36eng). The result was a common negotiation and conversation about particularly flood defence schemes in the town between the EA and local citizens. In the planning process, concerned citizens were strongly involved in the design of the flood defence

scheme. The EA proposal initially included to implement a 1.6 metre wall close to the river to protect the households at risk. However, the Cockermouth FAG enforced the EA to change their original plan to implement a self-raising barrier and/or windows in the wall (i36eng; i37eng). The results showed that the total costs of the scheme increased after the stakeholder engagement process.

As identified from the data collected here, the FAG in Cockermouth replaced the role of the local authority in the interaction with EA. In fact they closed a political vacuum at the local level, because nobody identified the responsibility to engage in the flood risk management discussion. In particular, interviewees showed that a key reason for this was the citizens' dissatisfaction with the work and results of the EA and local authorities. This dissatisfaction tended the local actors and stakeholder to get engaged in the interaction with the EA (i36eng).

> Participant: 'Payment for Outcomes, it's a different process for us to go through, often you've got, it's a different skill set, building up a funding package for a scheme, than perhaps the traditional project management that we were doing because a lot of that was around, if you like, people with an engineering type background. So at the moment it seems to be we're working hard to secure what we can get and we're organising ourselves differently, using people with the right sorts of skills because some are much more effective than others to have those sorts of negotiations really' (National Authority, England).

From this quote, despite this new co-operation approach the EA shifted away from being the engineer (designing and building flood defence schemes) towards more project management tasks. Above all, the consequences for the EA were a stronger focus on communication with local actors and stakeholders as well as stronger focus on project management tasks, such as budgeting and administrating the contribution of the different stakeholders. In line with Jackson (2001) and Clifford (2013), partnership funding needs a new organisational culture, skills, knowledge and competences.

The interview data for the Morpeth study site showed a shift of the relationships, activities and self-realisations among the different agents. First, the 2008 flood event and its consequences, e.g. insurance problems, increased the interest of the local citizens. They created the Morpeth FAG shortly after the flood event. Second, the partnership funding scheme opened the door towards the local authorities. The actors were partly involved in the planning and decision process of the flood

defence scheme to reduce the risk of future flood events from main rivers. Nevertheless, the different actors (Northumberland County Council and FAG) played a minor role in the design and planning process in Morpeth. Main reasons for this were that the businesses case and proposal of the defence scheme were already designed under the 'old' scheme. The key driver for the citizens to get involved was to satisfy the requirements from the insurance industry. Flood insurance plays a central role in the English flood risk management system (Lammond et al., 2009); not only in terms of compensation. A central policy is the needs of insurance cover where obtaining a mortgage and therefore has implications for selling the property (i37eng). The availability to cover depends on the coverage of acceptable risk, which is distinguished between three main groups:

- Properties (private householders or businesses) in areas with a flood protection standard of 1:75 or less are available; the premium depends on the level of risk
- Properties (private householders or businesses) in areas with a flood risk of 1:75 or more, were only covered, if the national authorities plan a new or improve existing flood protection standards within 5 years
- Properties (private householders or businesses) in areas with a flood risk of 1:75 or more, cannot guarantee to be covered by an insurance cover, if the national authorities plan no further flood alleviation schemes in the area (ABI, 2005).

Furthermore, an important aspect was the high level of knowledge and expertise by the local actors: e.g. Northumberland County Council has four engineers in their team (i43eng). However, their influence in the planning process was mainly concentrated on the re-design of the flood storage scheme, especially for the change of the locations (i42eng; i38eng; i43eng). The key reason for their limited influence was the already existing flood risk management appraisal, which was designed in the beginning of 2000s but never achieved the national funding requirements to realise the scheme. Further the involved actors and stakeholders wants not spend too much time to re-design the flood alleviation scheme. Also in contrast to the Cockermouth example, the Morpeth FAG expresses lower

technical knowledge and expertise (i38eng). Indeed, the main interest was to realise the flood alleviation scheme as soon as possible. An advantage in the strong cooperation with the different local actors was the quick response of the planning permission. In summary, the research study showed a co-operative interaction between the EA towards local stakeholders in Cockermouth and Morpeth. The example of Cockermouth confirmed coproduction decision-making practices, where the local scale influenced the design and implementation of management plan (Albrechts, 2013).

On the other hand, in the Bridgwater partnership funding scheme, the Sedgemoor County Council and the EA are key actors in the overall discussion, planning and management. Similar to the other two study sites, the town council played a minor role in the ongoing debate in Bridgwater. The town council shows a passive role in planning, management and implementation process as well as in respect to the definition and introduction of the 'roof tax'. A key reason is the lack of local capacity to engage in the decision-making practices, such as a local FAG as a megaphone. One explanation for the absence of a local FAG is the lack of recent flood events in the town, which in general influence the risk perception and the interest in flooding (Kuhlicke et al., 2012). Another interpretation is that the creation of local grassroots organisations, such as FAG, needs also socio-economic structures, e.g. cultural capital, income and interest. In addition, the Bridgwater town shows different socio-economic situation compared to the other two study sites. First, the town shows a much higher level of deprivation in comparison to Morpeth or Cockermouth. For example the regeneration plan includes 30% affordable houses (approximately 1,600 new residential properties). Second, the level of knowledge, experiences, wealth and contacts to different Government organisations is widely different. Morpeth and Cockermouth show a wide network with different policy makers from different Government level. Furthermore, both towns show a large number of well educated, middle class, citizens. These aspects are less present in the Bridgwater town with the result of a very low involvement of the citizens and businesses in the discussion. For example, the County Council started a consultation process (six weeks) about the implementation of the 'roof tax' to contribute to the future flood defence scheme. Based on the consultation process, the Council considered the

minor comments and adapted the original scheme (i40eng). The interviews showed that mainly developers contribute in the consultation process, but not by the citizen of the town (i39eng). The relationship between the Sedgemoor County Council and the EA is characterised by a relative low local engagement and management by the County Council to take over tasks and responsibility from the EA. The Sedgemoor County Council understands the problems, but has not shown own initiatives in the developing of the flood defence scheme or question of budgeting and funding. The EA strongly leads the overall discussion, such as the design of contribution (i39eng; i40eng).

> Participant: 'Under the old system we'd get 100% funding so we'd do a project appraisal and develop a business case and we would decide what the best solution was and, yes, we'd talk to the residents but most of the time we're kind of saying this is what we think is the right solution for your community, and they'd agree or disagree and sometimes, if they disagreed, we'd go ahead if we thought it was the right thing to do, but we'd try to get their buy into it and we'd deliver that scheme. Now because we can only fund so much; and some projects do get 100% funding from us, but especially when they don't and partnership funding really kicks in, we need to do a lot of work around obviously getting the extra funding in, a lot of working much more closely with those partners because if they're putting the money in they have a right to say what comes out of it, and also the outcome can be different. So the outcome can be much less or much more because they have to put more or less in' (National Authority, England).

This quote indicated under the previous system, the EA focussed their work with the community mainly to show them their best solutions, strongly top-down management system. The management of flooding has been a strong top-down bureaucratic approach, with a strong focus on box-ticking indicators technique. The new schemes encourage a changed approach of the EA. Today, the EA negotiate with the different actors more intensively and they also take the local views, ideas and concerns into consideration. At the same time, the local actors have to take part in the discussion process. In fact, the local actors have become more responsible and active in the flood risk management discussion, especially for the design of the new defence scheme. Similar results were found in the Austrian study sites, where only the Aist example show a strong engagement in the design and implement local ideas, strategies and concepts.

The Triesting-Tal study site is characterized by a passive role in the management process. The key actors are the regional authorities (WLV and BWV). Both are the important drivers in the strategic planning and initiation of new projects. The key tasks of regional authorities are primarily the

planning and the implementation of flood defence measures. Additionally, the key task is to ensure the funding for the realisation of the flood defence schemes. The regional authorities have to monitor and control the implementation process. An important aspect is the organisation of meetings, seminars or events with local actors in order to increase their risk awareness and explain the importance of the inter-local co-operation and the trust building between the different members of the co-operation. The local actors are responsible for the implementation of flood strategy (operative responsibility). A key observation from this analysis is that the inter-local co-operation focussed mainly the implementation of pre-defined tasks provided by the WLV and BWV. The main work refers to the negotiation with farmers about compensation agreements or purchase of farmland. From 2002 to mid-2000s an important actor was the district level, especially for bringing together the different actors and to promote the inter-local flood risk management strategies. Currently, the district no longer has a key role in the inter-local co-operation because of the change of interests. Also, the regional authorities, especially the WLV, have played a very important role in the identification of new members and their joining the co-operation (especially in the case of Furth an der Triesting and Altenmarkt an der Triesting). The co-operation secretary and also the chairman of the co-operation are based in Leopersdorf. The secretary is financed by the members of the Triesting-Tal. Their key tasks are the organisation of the ongoing administrative work.

The Aist study site can be generally described as a partial shift of the activity and self-realisation from regional authorities to the Aist co-operation. Although the key players are still the WLV and BWV (regarding planning, initiator, monitoring, controlling and instructing local actors), the Aist inter-local co-operation introduces its own ideas into the projects. The steering group plays an active role in the overall discussion with regional authorities in respect to the implementation process, but also participates in the planning process for defining solutions and ideas. However, the technical expertise is still controlled by regional authorities and external consultants. They are responsible for the technical solution and the feasibility of the ideas. At operational level the inter-local co-operation is responsible for the implementation of inter-local flood defence schemes, e.g. flood

storages. Here, the regional authorities provide a strong support in the prioritisation of flood defence projects. In summary, the regional authorities are important drivers of the general process. The inter-local co-operation is focused on the organisation of social activities (e.g. meetings, seminars and events) between the different members as well as with local citizens to encourage the stakeholder to engage in the overall process. At the beginning, the regional authorities led this task, but then shifted it in co-operation with the foundation. Furthermore, an important aspect refers to the branding of the inter-local co-operation (the key actor is the Aist inter-local co-operation). The regional authorities played an important role in identifying and incorporating new members into the inter-local co-operation. However, this task has been mainly shifted from the regional authorities to inter-local co-operation, especially in the case of the two non-members communities Bad Zell and Weitersfelden.

The Ill-Walgau study site is characterized by the active role of the regional authority and a rather passive role of the local authorities. The key actor is the BWV. This actor is the important driver in the overall flood risk management process. Key activities are the strategic planning and initiation of new projects. The emphasis is to define the general framework conditions of the overall project. The first activity was to locate and integrate new actors into the inter-local co-operation process (completed by the end of 2009). Additionally, the regional authority ensured the funding for the realisation of the flood defence schemes and was also responsible for the project controlling and monitoring of the implementation process. An important aspect was the organisation of meetings, seminars or events with local actors to increase the risk awareness, explain the importance of the inter-local co-operation and the trust building between the different members of the co-operation. In comparison to the other two study sites, the regional authority still plays an important role in the operational process, especially in the negotiation with local farmers. Moreover, the regional authority remains the key actor in the negotiation in collaboration with the Ill-Walgau. In the overall strategy plan, the regional authority is encouraging the Ill-Walgau inter-local co-operation to take over certain tasks from the regional authority (beginning with the second phase). In future, the inter-

local co-operation shall become the key player in the process. The regional authority will limit their key tasks to e.g. funding, project monitoring and controlling, or reports of the experts. At the moment the inter-local co-operation is only responsible for the administration of the co-operation, e.g. in organising meetings and events, administration accounting and emergency management. In the future the inter-local co-operation should take over also the project management.

The national and regional authorities play the central role in flood risk management policy. They are the key actors in the policy discussion and definition. The main reasons for this are their technical knowledge, their central role in funding and their permission power. Overall the local actors and stakeholder strategically depend on the national and regional authorities. The national and regional authorities are leading the design and development of flood alleviation schemes. However, their role strongly depends on the input from the local actors and stakeholders, as seen for example in the Aist study site. In general, we find local actors and stakeholders with a high interest and interaction (maturity). The leadership of the national and regional authorities has changed from promoting, networking and leading towards more project manager, analyser and problem solver. The empirical results show strong correlation between leaderships of national and regional authorities and capacity of local actors and stakeholders. The study sites with high local capacity and existing of space of engagement at regional or national level show a strong leadership at local level and bottom-up concepts and ideas. The outcome leads to a change in the responsibility between scales. Nevertheless, local knowledge and experiences play a role in the planning and implementation of flood risk management strategies. The local involvement in the discussion and decision-process depends on the local capacity (capacity to act), such as resources (knowledge, financial, time), interest, social and cultural capital. It strongly depends on the fact, if localities are able to ensure their interest and needs at higher level (e.g. regional, national). In general, an encouragement of local engagements in the policy discussion and decision process requires ‘space of engagement’. The empirical results show different ranges of local involvement, although the local level has mostly a central role in the flood risk management system. In England the focus is on the funding and

planning process, more than in the Austrian case study, where the focus is on funding, planning and future maintenance, strongly depending on the study sites. Overall, the countries encourage local actors and stakeholder to get stronger involved in the process. However, the interviews have shown a power distribution manoeuvre from public authorities towards local elite groups, primarily private citizens and stakeholders.

Due to the recent developments, the role of the state and individual responsibilities for flood risk management are now under review (Defra, 2012). This review has been driven by various developments: financial and economic crises (Defra, 2012; Featherstone et al., 2012), implementation of new legal requirements (EC, 2000; 2007) and recent flood events in England and Wales (Pitt, 2008; Defra, 2005). The new policy agenda tried to enhance responsibilities of different actors in flood risk management and reduce the controlling role of central governments. This implies a change in the relationship between the different actors (Pearce and Ayres, 2012) including the creation of a 'new state space' in the policy discussions (Brenner, 2004). Furthermore, the scalar re-arrangement encouraged a new organisational culture, skills, knowledge and competences (Clifford, 2013). The remaining question is if the new territorial scale in flood risk management is more than only a decentralisation of responsibility. In sum, the new territorial scale encourages local actors to get involved in the ongoing decision-process. This included a new space creation for local actors, which included a shifting of power towards non-state actors such as local grassroots organisations (Allen and Cochrane, 2010): in our case towards the FAG. Subsequently, partnership funding and the new localism policy foresee the promotion of wealthy-rural areas, where local actors want and have the experience and capacity to wield it. From the empirical results this discussion is far more relevant in England. Nevertheless, this study shows that the 'successful' implementation of new policy strategies refers to the questions of local capacity and legitimacy of the involved actors, especially in reference to the FAG (McCarthy and Prudham, 2004). Communities who fail to achieve these criteria will lose out from this new policy (MacLeod and Goodwin, 1999).

6.5.Strategic unification

The rescaling process refers to the new scalar construction (Perkmann, 2007). The scalar re-organisation is partly based on politico-territorial intervention from national or regional authorities, but also local groups have initiated to re-organise the scalar fixes (see chapter 2). These strategic interventions are based on a structural analysis of the current situation (i.e. regional studies in Austria) and a concrete action program (i.e. catchment management plan). The creations of the scales in both countries are mainly influenced by previous developments. The river development concept, for example, has a strong influence in the development of catchment-wide management plans in Austria, such as Ill-Walgau catchment management plan (i16aut; i18aut; i19aut; i20aut). Furthermore, in the late 1990s and early 2000s the flood risk management discussion changed towards an integrated flood risk management approach with a key focus on catchment approach (White and Howe, 2002). Differences between both study sites were the statutory implementation process in Austria (see section 6.3.1). On the other hand, the introduction of the partnership funding and the need of additionally funding sources from local actors, effectively allowed realisation of the Cockermouth and Morpeth scheme as both schemes were designed under the previous funding regime and never satisfied the requirements of the ranking-system (i37eng; i38eng). Based on the flood risk management appraisals, the different study sites developed a programme of measures to reduce the impact of future flood events. The development of the action programme strongly depends on the availability, interests and resources of the local actors (see section 6.4).

> Participant: 'certainly some people are better able to take advantage of those mechanisms than others, it's a two-way thing, it's about what's provided, what opportunities there are and then what capacities there are in communities to take those opportunities and sort of make them work in their interests' (Academic, England).

An analysis of the interviews showed a strong top-down approach in the areas where local actors show no or marginal interests (see sub-section individual/regional performance). However, also the study sites with a high influence of local actors show often a lack of co-ordination with other benefits with the consequences of additional costs or opposed management plans. In summary, the action programme follows mainly the goal of flood risk management instead of a holistic spatial

development concept. The Austrian study sites showed a long-term planning prospective mainly developed by regional authorities and a low impact by local authorities. On the other hand, the English case study shows in two out of three study sites a stronger involvement by local actors, but also here I observed a strong leading position by the EA and their top-down management approach, except in the case of Cockermouth and to some extend in Morpeth.

Indeed, the re-scalar arrangements had empowered local actors to get involved and have influence in the planning process and decision-making. However, the participants mentioned that the rescaling process only empowers certain groups. Key aspects are the preference of adequate institutional and organisational settings to use these opportunities (see also section 6.4). Without these the local actors and stakeholders were not able to respond to the new responsibilities, tasks and opportunities with the result that the local authorities were not able to handle with the new environment.

Besides partnership funding, the new localism approach in England shows strong restrictions and limitations in the freedom of local decisions. For example the introduction of a 'roof tax' as a financial instrument includes various national restrictions. The implications are that the new localism policy hinders bottom-up developments. The national Government limits the possibilities of local authorities, which cause a mismatch between 'policy' and 'rhetoric' of local engagement in flood risk management. The consequences are disempowered communities with the results of a strong top-down dependency.

> Participant: '(…) this community infrastructure levy has been introduced and by Spring of 2014 will no longer be able to take contributions from more than five separate developments, you won't be able to pool…at the moment we're pooling them all together, so from April 2014, something like this flood tariff roof tax scheme wouldn't be legal (…) It has to be based on economic viability and it will be independently examined and, again, doing it at the moment, economic viability is very poor, so it's suggesting quite low levels of contribution' (Local Authority, England).

The introduction of the new community infrastructure levy in England, for example, requires an independent review of the planned local levies and their future use, which causes new restrictions at

local level instead of empowering the local actors. The fear is that the new policy direction leads only to a rhetoric empowerment of local actors and stakeholders (Haughton et al., 2013).

Fuzzy boundaries and soft spaces play an important role in the actual flood risk management discussion in both countries. The study sites show the use of fuzzy boundaries and soft spaces in the planning and decision process. The use of fuzzy boundaries created the local scales a new space of opportunities to develop flood risk management plans (Allmendinger and Haughton, 2012). The consequences were the introduction of new administration practices and regulatory rules, often outside the formal legislation framework. A key motivation is the aspect to include all relevant actors in the planning process as well as flexibility, but also the aspect that flood issues are not oriented towards artificial borders. The Austrian catchment authorities go a step further, where the rescaling process produced a metagovernance structure (Jessop, 2004) or a new 'sub-region' (Haughton and Allmendinger, 2008) to organise more efficiently flood hazard aspects. Nevertheless, the local management plans have to adapt to national and international strategies. Interviews with local and regional authorities in Austria have shown the limited use of soft spaces in the policy discussion. In particular, the selected three study sites show no or only little interaction with other planning instruments and authorities like spatial and land use management or emergency management. The spatial and land use management plans or emergency management plans are strongly focussed on artificial borders (see also section 4.2.1). 'Soft spaces' have been mainly used in the negotiation process between the local municipalities and local land owners to adapt the planning system. The interviews show the high importance of flexibility in the planning process, because of difficulties in the agreement with local land owners or local authorities (i12aut; i13aut). Nevertheless, the Austrian study sites show a process of 'hardening' of the catchment-wide boundaries (Metzger and Schmitt, 2012; Haughton et al., 2013; Heley and Jones, 2012). The different collaborations show a high degree of formalisation between the different actors.

6.6.Territory and place in flood risk management

Territory and place play a particular role in the scalar re-arrangement (Jessop et al., 2008; Jones and Jessop, 2010; Brenner, 2004). The aspect of territory in flood risk management is often linked to the policy objective of reducing damages caused by flood events in defined boundaries, such as hydrological or political boundaries. The local municipalities use their territorial power to restrict the land use and to give permission to build flood defence schemes. The local authorities, especially in Morpeth and Cockermouth, use their power to adapt the flood alleviation scheme to their needs and interests, in order not to lose the tourism attraction of the town (i43eng; i37eng). A second aspect refers to the link between funding and territorial power (Späth and Rohrbacher, 2013). The empirical results reported a shift in the funding scheme, which also included a shift in territorial power towards local levels. With the introduction of the partnership funding in England the local contribution and influence increased over the past years. The main reason for this is the access to local financial contributions, which have an importance similar to national resources: In Bridgwater and Morpeth local actors overall contributed more than 40% to the local flood alleviation scheme. The local actors (such as Sedgemoor County Council and the local FAGs in Morpeth and Cockermouth) interact very closely with the citizens in their community. Therefore these local actors have also become more important in the discussion and decision-making (i38eng). In the case of Aist, I identified that beyond the local and national resources, international resources (e.g. Europe government level) play a crucial role in the territorial power relationship. The EU funding shows an equal importance compared to the national and regional funding sources. This has an impact on the multilevel governments and institutions, which decide on the local flood risk management planning (Späth and Rohrbacher, 2013; Jessop et al., 2008). The local authorities use in this case this opportunity to influence the planning process and change partly the power structure between local and regional – national authorities. Nevertheless, in most of other cases the local contributions are only understood as an additional funding source, rather than an alternative to the national sources.

Second, the location is a key role in the political mobilisation of local actors. The different countries are characterized by strong local attachment by local actors, stakeholders and citizens. The consequences were a strong focus on 'place-based' flood risk policy (Hildreth and Bailey, 2013). The different inter-local co-operations, for example, label themselves towards third actors to promote the co-operation. They use the inter-local co-operation as the official 'branding' name in communication processes. Furthermore, the different partnership approaches have designed individual logos and websites to increase their awareness as well as to disseminate the project. However, these efforts demonstrated a limited success (i26aut). Identification plays an important role for promoting financial contributions and supports by local actors (i36eng). Particularly, the English study sites demonstrate a strong interest for the local actors for 'their' community scheme (strong local attachment). Local attachment has also played a key role in the development of the local FAG. The FAG are established and defined for the needs and interests for the community level (i36eng). I identified a similar outcome in the Austrian study sites, where a key conflict was the contribution (e.g. land, financial) of each member in the co-operation. Nevertheless, the regional authorities in co-operation with the local leaders established adequate rules for individual funding (see section 4.2).

6.7.Key findings

The findings of this chapter show the impacts of scalar re-arrangements in the governance structure in flood risk management. The results show that the re-scaling process enforced a change in the social structure and interaction between the different actors with new working relations and interactions. First, the study sites show an increase in the number of actors in the ongoing policy discussion (equalling a new governance framework). Second, the new scalar re-arrangements empower local actors. Third, the local actors are more involved in the decision-making process. Nevertheless, I have showed that the outcomes of this strongly depend on local capacity to use these opportunities. In England, for example, I have identified that especially the middle class professional groups with expertise and skills (e.g. planners or lawyers) have gained from the new

policy direction. In summary, the scale jump empowers local actors to get stronger involved in the policy discussion. However, this strongly depends on the local interests, identification with the project and idea and resources (capabilities). This can be observed in both countries. The escapes from the scalar fixes put the local actors in a strong position in the management discussion (i9aut). However, the co-operations are not fully using this power and position. One reason is the interdependences between the different actors regarding interests, objectives and capability as well as the problems of parochial and particularised local policy directions (Kitchin and Wilton, 2003). On the other hand, Morpeth and Cockermouth are using the scale jumping in reorganising of social interaction to gain power from national level for their interests. The actors show a highly active role in the actual policy interaction. The implications are more and new actors and stakeholders were involved in the policy and flood risk management planning discussion and decision-making. The aim of the new group of people is to engage in the process to ensure their interests also in terms of changing political order (Cox, 1998). Therefore, the new politics of scale empower local actors, stakeholders and citizens to engage in the political process, although local capabilities are necessary (see above). The consequences are that these communities will benefit from the new scalar structures.

The main findings are:

- The Austrian governance structure has a strong focus on a technocrat relationship between the different actors. The English study sites include the change in the governance structure mainly for the planning, decision and implementation processes. The relationship includes only a short-term and temporal framework with the key focus on funding and planning.
- The rescaling process leads to a new administration and regulative structure, such as a new chairman and director in the inter-local co-operation. The Austrian approach includes a formalised administrative structure also for the decision process. Each inter-local co-operation contract includes a regulatory part for the decision process. On the other hand,

the English study sites include a more flexible-informal and non-statutory administration process and unit. A key reason is the lack of a nationwide regulatory approach.

- Networks play a critical role in the overall scale constructions and interactions. The two countries showed the creation of new networksalong the scalar re-arrangements as a consequence of new scalar arrangements.
- The national and regional authorities play the central role in the policy on flood risk management. They are the key actors in the policy discussion and definition. Main reasons are their technical knowledge, their central role in funding and their permission power. Overall the local actors and stakeholder strategically depend on the national and regional authorities. The national and regional authorities are leading the design and development of flood alleviation schemes. However, their role strongly depends on the input from the local actors and stakeholders.
- In England the focus is on the funding and planning process, more than in the Austrian case study, where the focus is on funding, planning and future maintenance, strongly depending on the study sites.
- General implications of new scalar arrangements are the development of new governance constructions as well as their social practices.

The next chapter will focus more on the analysis of spatial development dynamics and policies. In particular, the focus lies on analysis of the interaction between different actors and stakeholders at different scales as well as the management of the relationship between them.

7. Performance of new networks

Research question: What is the role of proximity in shaping the opportunities and barriers for partnership activities in flood risk management, and what are their social and political functions and consequences in flood risk management?

This following chapter examines the findings to addresses the interaction of new networks in flood risk management. The aim of this chapter is to examine the different stages in the integration of partnership approaches in flood risk management. As discussed previously (chapter 6) the new scalar re-arrangements enforced new relationships between the different actors and stakeholders.

7.1.Performance analysis of actors and stakeholder engagement in flood risk management policy

To apply the proximity discussion in this thesis, I have constructed a three-stage framework (table 7.24) to translate and analyse proximity within flood risk management. The conceptual framework orients to the previous work by Lundquist and Trippl (2013) and is composed of a stepwise model including three main stages: stage 1 (inadequate integration), stage 2 (semi-integration) and stage 3 (full integration). Stage 1 is characterised by low co-operation between the different actors and stakeholders. The main reasons for this are the lack of flood risk awareness in the communities, strong parochial policies and the fear of losing competences and power. The members have not acknowledged the benefits from co-operation, which ended in contradiction policy directions. Stage 2 includes a first step into a deeper co-operation between the different members, actors and stakeholders. The asymmetric levels decrease between the members. However, there still exist many obstacles and barriers for a fully successful co-operation. Finally, a strongly integrated co-operation includes the 'optimal' solution. The co-operation is characterised as an optimal interaction between the actors, stakeholders and citizens. There is a symmetrical flow of information, experiences and ideas among the different members of the co-operation, where the processes are created by fair power, risk- and responsibility-sharing (Innes and Booher, 2004). The ideal is the

introduction of coproduction in flood risk management and planning system (Albrechts, 2013) – stage 3. 'Co-production means delivering public services in an equal and reciprocal relationship between professionals, people using services, their families and their neighbours' (Boyle and Harris, 2009: 11). Each stage will now be discussed in more detail.

Stage 1 (inadequate integration): weak interaction is displaced between the different members in a flood risk management partnership. Key problems include the physical distance between the different actors (functional proximity), a low degree of trust between the actors (social proximity) or lack of benefits from the co-operation. A key barrier in the inter-local co-operation, for example, is lock-in (decision-making) at local level (see also section 7.3), the fear to lose competences, power and limitations of self-governing (Weichart, 2006). Further hindrances are the high degree of competition between the different communities and regions, especially in relation to public funding and new business investments (Hagspiel, 2001; Amdam, 2001). Additionally, often there is no clear definition of how to share responsibility between the different actors as well as unequal – asymmetric power sharing (Hagspiel, 2001). In addition, a key barrier is the uncertainty regarding future developments.

For example, from previous examples in inter-local co-operations, in general, 'large' communities (in Austria mainly communities in the lower part of the catchment) are more likely to co-operate with other communities, because of the cost savings based on the economics of scale effect as well as due the possibility to get a flood defence scheme without increasing the role of the neighbourhood communities. On the other hand, studies show that 'small'-peripheral communities react more sceptically towards an inter-local co-operation process, because they fear losing the identification and self-governing independence (Wirth and Biwald, 2006; Weichart, 2006). Besides, rural (periphery) communities are often too 'weak' to start an inter-local co-operation process as they fear additional costs to the public budget (Weichart, 2006). The consequences are that local authorities define and follow different objectives and goals instead of a common vision. The results are strong conflicts between the different actors. This includes a relatively low willingness for co-

operating (Lundquist and Trippl, 2013). In general, harmonisation and the use of non-structural flood defence measures are secondary goals, such as inter-local spatial and land use management strategies. However, the different actors recognise the individual benefits of the inter-local co-operation.

Stage 2 (semi-integration): goes a step further. The physical distance is less important, because the different actors and stakeholders know each other. However, the harmonisation between the different actors and stakeholders is not fully integrated, in particular the spatial and land use management or emergency management plans. In this stage of co-operation decisions are based on given political – institutional barriers. Regarding non-structural measures, I observe a first harmonisation of the management plans between neighbourhood communities or at the district level, e.g. through exchange of information. Furthermore, in inter-local co-operation in flood risk management, for examples focuses to the implementation of inter-local structural measures, e.g. runoff management in the catchment.

Stage 3 (full integration): includes the full integration between the different actors and stakeholders in a partnership approach. I assume this as the final step in the partnership process. The focus in inter-local co-operation, for example, is on the implementation and maintenance of structural measures as well as full harmonisation of non-structural instruments, e.g. spatial governance approach and catchment-based emergency management plan. The different actors and stakeholders exchange information (e.g. round tables, meetings) about their developments, objectives and concepts relation to flood risk management. A key objective is the use of a mix of different management instruments to reduce the impact of future flood events. A further important issue is the need to avoid contradicting policy directions in the inter-local co-operation. Throughout, an important consideration is the social learning process between the different actors. In the ideal case, the partnership approach includes a fully democratic and transparent system to ensure accountability and legitimacy.

Table 7.24 proposes a framework to analyse the engagement of the different actors, stakeholders and citizens in various themes in flood risk management. In total, I selected four criteria, which have key functions to flood risk management, to compare the selected study sites.

Table 7.24: Characteristics of different level of engagement in the co-operation process

	Weakly integrated (Stage 1)	**Semi-integrated (Stage 2)**	**Strongly integrated (Stage 3)**
Spatial planning	No/medium harmonisation	Medium/high harmonisation	Spatial governance
Structural measures	No co-operation, e.g. preventive local-linear structural measures	Medium/high co-ordination between communities, e.g. implementation of flood storages	High/fully co-ordination between communities, e.g. implementation of common catchment management schemes, such as to improve infiltration rates (cross-field mould ploughing, improve soil structure, install water boreholes), to reduce flow connectivity (buffer strips, afforestation, flood storages)
Stakeholder engagement	No co-operation between private-public actors and stakeholders	Informal co-operation between private-public actors and stakeholders, e.g. asking for funding scheme	Full co-operation between public-private actors and stakeholders (companies and households), funding and steering group
Risk communication	No communication between public authorities and non-state actors and stakeholders	Communication within the members of the partnership approach	Communication with internal as well as external stakeholders and citizens

Source: own development

Spatial planning

Spatial planning has become popular in the flood risk management discussions. Its role is to co-ordinate the different interests and objectives of actors, stakeholders and citizens. The term 'spatial planning' itself including all different actors involved in the decision-making practices, so we underlined that spatial planning has to be seen as a socio-spatial process. In this line, spatial planning is a 'political project' (Allmendinger and Haughton, 2009b: 2547). As such, spatial planning includes a 'strategic perspective on land development, environmental concerns, resource use, transport, economic development, social infrastructure, and similar concerns' (Allmendinger and

Haughton, 2007: 1478). Spatial planning and land use management never act independently; instead, different interests have to be co-ordinated (Allmendinger, 1998; Neuvel and van der Knapp, 2010; Baker and Wong, 2013). It includes a wide range of different actors involved in the decision making process, e.g. housing, transport, economy, health sector, education and environment (Allmendinger and Haughton, 2009a). Consequently, spatial planning is the field in 'which people shape and govern spaces and takes into account social, economic, and environmental issue' (van Assche et al., 2013: 179), and where the social structures influence spatial planning process and the outcomes. Nevertheless, spatial planning has often been criticised for not responding to the actual level of hazards (Howe and White, 2004; Fuchs et al., 2013) or causing conflicts between the different actors and their interests (Neuvel and van der Knapp, 2010; Pardoe et al., 2011). There exists a central conflict between economic growth and the reduction of future losses caused by natural hazards events; this is of particular importance in European regions due to the scarceness of areas suitable for development activities. A key focus is related to the prevention of future natural hazards events, e.g. local protection and adaptation measures such as the designation of retention areas, flood proofing of new buildings or implementation of sustainable urban drainage measures (Sapountzaki et al., 2011; Holub et al., 2012).

Structural measures

Traditionally, flood risk management focused on local protection measures, such as building embankments or straightening the watercourse. The integrated flood risk management approaches recognise a broader view of the management of a catchment as an integrated management system. The extensive use of the space for highly economically valuable activities (agriculture, industry and settlement) in the downstream catchment limits the availability of land for temporal flood storage area. On the other hand the availability of land upstream with no major economic use provides the potential for large water storage capacity. The needs for flood storages in the upper river catchment for the benefits of downstream settlements require an inter-local approach to reduce vulnerability in the catchment. Therefore, a clear statement is the implementation of catchment-wide

management plan (Wilkinson et al., 2010). This includes a broader co-operation between local authorities, especially in rural areas. The key aim is the consensus building between the different groups (Berkes, 2010; Margerum, 2008). Key aspects are 'inclusion, power-sharing and joint decision-making' (Berkes, 2010: 492) as well as 'an interaction of equals, rather than a subject-object relationship' (ibid: 492).

Throughout, with current pressures on local authorities to reduce spending and in parallel, a reduction in the central state's resources, catchment flood risk management plans have been seen as a possibility to both increase the 'value' of budgets available and to increase efficiency in using current public funds and resources. Furthermore, they may allow direct and indirect benefits including harmonisation of spatial and land use management plans. From the interviews the most mentioned advantages are access to additional resources (e.g. funding, land).

Stakeholder engagement

Stakeholder engagement is a core aspect in an integrated flood risk management (Renn, 2008). Scholars defined stakeholder engagement as a social process; to work together to find a collective solution for a certain problem (Green and Penning-Rowsell, 2010). In the policy discussion, stakeholder engagement is often initiated by political parties/leaders (e.g. mayors) or by the public administration. Key arguments are to increase trust and legitimacy of citizens into public administration. In the literature, scholars often mentioned the inflexibility of public administration to react to the outcome of public participation process (Tseng and Penning-Rowsell, 2012). Other problems relate to the lack of institutional support about how to organise/deal with a stakeholder engagement process, lack of communication and information-sharing and especially lack of resources, in particular in respect to large participation processes. Key problems are related to the different interests and views of each stakeholder groups, e.g. political leaders or public administration try to increase accountability and legitimacy, people in risk areas ask for structural measures to reduce vulnerability etc. Throughout, stakeholder engagement is an important process for the successful implementation of certain policy strategies.

Risk communication

Risk communication is the core aspect in the risk governance framework. It is an important issue, because it influences various aspects, i.e. individual mitigation behaviours (Soane et al., 2010), emergency management processes or warning processes. Risk communication includes the investigation of 'how expert assessments could be communicated to the public best, so that the tension between public preceptors and expert judgement could be bridged' (Renn, 2008: 201). The key aspect is to help stakeholders in understanding technical-scientific results set out by the final objectives and how to achieve these targets (Renn, 2008; IRCG, 2008). Filatova et al. (2011) described the risk communication process as a process of exchange of information and knowledge. IRCG (2008) defined risk communication to enable and engage different stakeholder groups to understand the results from the various different steps (risk appraisal, risk framing and risk management) to support the final decision to reduce negative impact of flood events. Moreover, risk communication shows also different points of view and experiences of the different agents (Lofstedt, 2003).

Figure 7.28 provides an overview of the results of the two countries. None of the selected study sites have fully achieved the 'optimal' level of integration between the different members in their partnership approach. The differences will be described in the following sub-sections.

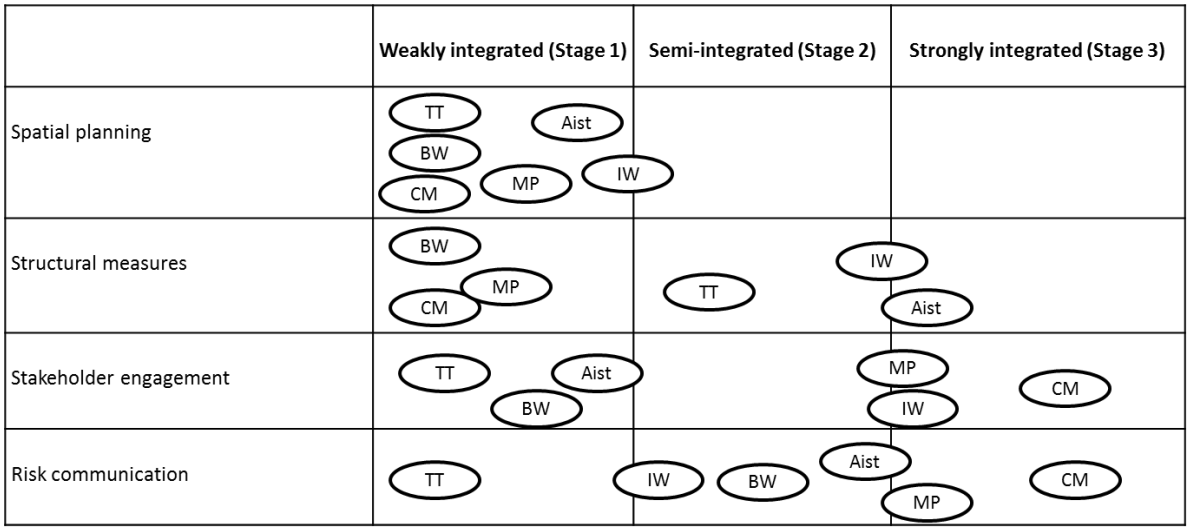

Figure 7.28: Integration and network engagement in the selected study sites

Source: own development*

*Abbreviations:
BW – Bridgwater

CM – Cockermouth

IW – Ill-Walgau

MP – Morpeth

TT – Triesting-Tal

The following sections are dedicated to offering some key conclusions of the level of engagements in the selected countries.

7.1.1. Spatial planning

Based on the shift in the natural hazards discourse, away from the engineering standard of technical protection schemes towards a broader integrated management, spatial planning has become popular in the flood risk management discussions (Wiering and Immink, 2006; Hutter, 2007; Glavovic et al., 2010; Porter and Demritt, 2012). In general, spatial planning and land use management focus to the prevention of future natural hazards events, e.g. local protection and adaptation measures such as the designation of retention areas, flood proofing of new buildings or implementation of sustainable urban drainage measures (Sapountzaki et al., 2011; Holub et al., 2012). A central point refers to the aspect of the governance structure, the relationship and the interaction of the different

actors in the planning discussion. Spatial planning never acts autonomously and independently from other policy goals and developments (Neuvel and Van der Knapp (2010) or Pardoe et al. (2011)). However, often a missing link is to manage the actual and the potential flood risk in the catchment including a broader view of the catchment.

The patterns observed in the figure 7.28 show no clear integration between the different study sites. Neither the Austrian nor the English study sites could be considered as fully integrated in spatial planning. Flood risk management has no or little impact in the design of local land and spatial planning plans and strategies. The key objective is the economic growth within the administrative boundaries. Further, the land use management and spatial planning plans have no link to their neighbourhood communities or local authorities. The plans have no clear vision how to integrate and to solve the problematic of flood risk management in land use management and spatial planning. For example, analysing the Austrian interviews, the local authorities within the Austrian study sites show a low interest in co-operating within the field of spatial and land use management planning, because of the local parochialism and fetish of economic growth contrary to a regional governance solutions (Fürst, 2003; Wirth et al., 2008). The three study sites show weak preparations for coordination or harmonisation of local spatial and land use management plans. Further, the empirical results show that all three study sites have little interests in closing this gap, because of the increasing tax competition between the local authorities, which favours competition instead of rational collaboration (i3aut). An exception is Ill-Walgau study sites, where the regional authorities introduced the blue zone concept. Since 2012 the Federal State Vorarlberg has introduced the planning concept of the 'blue zones'. The 'blue zones' define water relevant areas; mainly run-off area of small flood events. The key idea is to restrict the land use management in these areas, e.g. ensure natural retention areas. The definition of 'blue zones' is a top-down approach, where the Federal State defined the water relevant areas. Furthermore, the concept is inter-local and defined by the regional authorities. The consequences were that the study sites show no shifts in the spatial planning process from local based approaches to a catchment-based level. Further, a clear lack is the

openness of the spatial planning thinking to a broader-more holistic view of the space as well as strategic – long-term vision for the catchment in referring to the impacts of climate change. However, also the institutional frameworks have not solved this problem, the lack of formal and informal rules and norms. For example, a remaining obstacle is the low involvement of the Federal State in local spatial planning concepts in an advisory role to control the spatial and land use management acts for flood risk management. On the basis of empirical results, the Federal States in Upper and Lower Austria provides no pressure on the local authorities to develop catchment-wide spatial and land use management plans. Key reasons for this are the political overlapping of local politicians at Federal State level. In Lower Austria and Upper Austria more than 78%[29] of the members of the Federal State have been representative of a local authority (current or past legislation), e.g. mayor, deputy mayor or members of the municipal council, with the effect of a strong position of local interests in the ongoing political discussion at regional level. This observation has strong implications for flood risk management, because the effects from the Federal State towards floodplain development controls are strongly limited. Consequently, the local authorities define their own spatial development plans, often in conflict with the neighbourhood communities.

Similar results can be found in England with the introduction of new Town and Country Planning Act (UK Legislation, 2012), which foresees the implementation of neighbourhood area plans in close co-operation with local stakeholders. The consequences were that the neighbourhood planning has abolished the regional spatial strategy plan (UK Government, 2004) by the current government. The outcome was a downscaling process of the planning documents to parish councils or urban boroughs (i40eng). Analysing the neighbourhood plans from the English study sites, only Bridgwater has not developed a neighbourhood plan yet. The neighbourhood plans from Cockermouth and Morpeth were oriented towards housing, local economy, heritage and local environment. In general, the aspect of floods plays a minor role in the overall plans. In Cockermouth, the town council focus their neighbourhood plans towards main street improvements (Cumbria County Council, 2013). In

[29] Own calculation: data based on OÖ (2013) and NÖ (2013).

Morpeth, the neighbourhood plan foresees to restrict land use, especially new residential areas. However, the plan has no concrete strategy and advice how to control and to organise flood risk in the town (Northumberland County Council, 2011). Consequently, both neighbourhood plans include no reference to the local flood risk problems. These patterns are in contrast to the National Planning Policy Framework (NPPF, 2012), which request an 'integrated spatial and land use management planning' approach to take into consideration the different aspects, e.g. flood, climate change, housing, or infrastructure (CLG, 2012). Furthermore, the neighbourhood planning include no catchment-wide land use management concepts.

Therefore, the ideal situation would be the introduction of a catchment-wide spatial planning strategy enforces the creation of new state spatialities and processes in the on-going decision-making process. The new concept shifts the planning process and discussion from local based approaches towards the natural-surface catchment boundaries. Important aspects are the engagement of new actors in the planning discussion to integrate different aspects in the decision-making process. These include a wider range of different actors with different interests. Further, a key point is a strategic – long-term vision from local-based towards catchment-level approach. This comprises a new spatial imagination for local and regional actors to influence management plans and regional defined regulatory, like regulatory zones and building control instruments. The implications of a new spatial planning approach is the introduction of the concepts of soft spaces and fuzzy boundaries (Allmendinger and Haughton, 2009; Haughton and Allmendinger, 2013). The use of soft spaces has become an issue in flood risk management as the strategy of flood risk management moved from local-based approach to a catchment-wide approach. The focus on catchment-wide management strategies request the construction of a network between the different local actors and stakeholders, also in terms of providing bottom-up initiatives and informal strategies to overcome delays and closeness in the public administration. Further, the creation of inter-local co-operations are a response to the institutional limitations in flood risk management, because administrative borders cannot prevent flooding.

7.1.2. Structural measures

Traditionally, flood risk management focused on local protection measures, such as building embankments or straightening the watercourse. The integrated flood risk management approaches recognise a broader view of the management of a catchment as an integrated management system. Looking at the strategy to implement flood defence schemes in the study sites, it has become clear that the English and the Austrian study sites are represented by a significant degree of heterogenity. The Austrian study sites focus in the implementation of inter-local flood risk management concepts, such as flood storages across the catchment.

Also in relation to structural defence schemes, the three English study sites show mainly local flood defence schemes, such as embankments. Here the main hindrances are a lack of inter-communal co-operations: (1) there are no legal frameworks or incentives that would encourage the local authorities to co-operate and to work together; (2) the inclination on economic growth: there is no win-win situation between the different partners in the co-operation between upstream and downstream communities, especially the upstream communities have to contribute, e.g. by restricting the land use in its administration unit. Also the current intensive focus on economy and competition between the different local authorities influences the spatial and land use management plans. The drive of economic growth is not at regional level, but on the local level (i33eng); (3) lack of political willingness for inter-communal co-operation: while analysing the interviews a lack of political willingness was found to push and to encourage local authorities to work together; especially local authorities from different political parties. The inter-local co-operation can be seen as an ideal instrument for the implementation of flood storages. Throughout, with current pressures on local authorities to reduce their spending and in parallel, a reduction in the central state's resources, inter-local co-operation has been seen as a possibility to both increase the 'value' of budgets available and to increase efficiency in using current public funds and resources. Furthermore, they may allow direct and indirect benefits including harmonisation of spatial and land use management plans. From the interviews, the most frequently mentioned advantages are the

access to additional resources (e.g. funding, land) and the effects of economies of scale. Here, inter-local co-operation has the possibility to ensure natural retention or flood storage areas in the upstream communities, which is less expensive than individual solutions for each community.

The three study sites in Austria follow a clear inter-local flood defence strategy in contrast to the English empirical results. Analysing the catchment management plans, they encourage the achievement of multiple benefits from the strategic proposals, e.g. by increasing biodiversity or by improving the river continuity. In respect to flood risk management, the overall goals are the implementation of flood storages in the catchment. There are significant differences between the three study sites in Austria in the extent to which temporary flood storage has been adopted. Implementing flood storage areas involved the temporal and unpredicted (in terms of which year and frequency) flooding of large land areas often use for other purposes. The implications are that larger networks create higher transaction costs, particularly due to the increase of communication processes between the members of the co-operation. They also may generate problems related to a fair sharing of power between the different actors. A third aspect includes the risk of a failure of the negotiation process, especially for the re-organization phase. The key barrier is the different interests (flood prevention benefit transfer to downstream communities and financial transfer to upstream communities) of each stakeholder which may complicate the decision process when ranking different options, e.g. ranking the implementation of the flood alleviation schemes. A key problem is that this policy option includes a safety benefit transfer from upstream to the downstream communities; sacrificing upstream communities (increase the risk of upstream communities), which were compensated (positive discrimination) by downstream communities; funding transfer from downstream to upstream communities.

There are potentially at least three potential classes of barriers that may need to be overcome and which therefore account for these differences in adoption:

- Cultural and social relational; for example, in England, the cultural understanding is that all existing land uses must be protected from flooding and hence the sacrifice of some land to protect other land, and the retreating of defences to free up space for the river, has not so far been publically acceptable as a mainstream measure.
- Compensating those whose land will now occasionally be flooded. The implementation of flood storage is that both farmers and government want to convert intermittent large losses and payments into smaller fixed annual amounts.
- Administrative boundaries. Most countries have written Constitutions which define powers to different layers of administration within define boundaries, commonly provincial and municipal. Undertaking works in one administrative unit in order to benefit another consequently is a problem to be resolved.

7.1.3. Stakeholder engagement

In the implementation process of new flood risk management strategies, the empirical results from all study sites in Austria and England highlighted the inclusion of further key stakeholders; including land owners and inhabitants in floodplain areas as well as those stakeholders who are indirectly affected by flood events or those who are paying for the costs of flood risk management. From the empirical results, the different stakeholder groups in the selected countries are not homogenous, inside these groups exist a wide range of different interests and objectives, which reflect the multitude of stakeholders in the planning and decision-making practices (see also section 6.3.2). In general, the involved actors, stakeholders and citizens can are those living at risk of flooding (directly affected by past events) or those living in the catchment or community but not living at risk. Examining the stakeholder engagement in the policy decision-process as well as flood risk management planning I can observe substantial differences between the study sites. In particular, the two English study sites, Morpeth and Cockermouth, are well endowed with the engagement of local actors and stakeholders. The key reason for this high degree of integration is the presence and effectiveness of local grassroots organisations. Also the societal acceptance to engage in the policy

and flood risk management planning process seem to be higher in the wealthy rural English study sites than in the Austrian study sites or in Bridgwater. On the other hand, the involvement of private actors it emerged from the interviews that the negotiation process was longer and more complicated as a result, because of the different interests. Most of the time the exclusion of private actors as a member in the partnership are based on lack of political willingness to involve and to enforce private actors to contribute (i9aut). However, the influence of stakeholder in the flood risk management planning and decision-making practices depends on the local capacity as well as trust and openness in the public administration. The involvement of stakeholders implies a longer negotiation process than in the case of individual local authority based solutions. For example, regional authorities of Vorarlberg (Austria) have spent around 1,200 hours in 2010 and the directorate of the Ill-Walgau co-operation around 800 hours in 2010. However, the transaction costs will reduce at medium-longer term perspective. One main reason is the communication and planning process with just one partner instead of 27 partners (like the case in the Aist). The third aspect includes the risk of a failure of the negotiation process, especially for the re-organisation phase. The key barrier is the different interests of each stakeholder (flood defence benefit transfer to downstream communities and financial transfer to upstream communities). Castells (1977) described this as one explanation 'why the membership of groups is not stable' (ibid: 78). Most of the different actors have strong interdependent interests, such as economic growth vs. restriction in land use management, which cause conflicts between them (see also figures 6.23 and 6.25). Conflicts mainly rise due to funding, especially the amounts of the individual contributions show a high potential of conflicts between the different actors. The Austrian interviews show this to be a key barrier in the development of inter-local co-operation (i5aut; i19aut; i11aut; i9aut). A key solution has been the implementation of a 'fair' financial distribution between the different actors and stakeholders.

This study observed five main incentives for local contributions in flood risk management. First, a strong incentive for the local contribution was the recent flood history, for example in Cockermouth

2009 which affected the whole town. Second key factor was the local grassroots organisations. In the English case study, the non Government actors and stakeholders played an important role in the partnership funding agreement. The partnership integrates different private actors in the decision process, mainly households and small-medium business owners. The interplay between the different organisations required a new orientation in the inter- and intra-organisational relationships. The consultation process, however, progressed slowly. Problems of misunderstandings, lack of trust and asymmetric information levels are unavoidable between the different actors. This led to longer and more intensive negotiation processes compared to the 'old' system, especially a key factor was the common understanding about problem definition, objectives and possible solutions between the actors. Especially this study showed the changes in the governance structure in the English flood risk management policy. Under the 'old' funding system mainly public authorities took part in the flood risk management discussion. With the possibility of private actors to contribute to the flood defence scheme, their influence has increased in the overall process. Today, the private actors take part in the planning and decision process. The introduction of partnership funding has to take into account the collaboration, similar to the new spatial planning approach (Baker and Wong, 2013), even though the processes were initiated by local contributors, such as Cockermouth. In particular, the funding policy shifted the financial risk from the EA towards local actors and stakeholders. In practice, local actors and stakeholders have to contribute to additionally needed funding (i43eng), because the EA is providing a fixed allowance.

On the other hand, the Triesting-Tal implemented strong barriers preventing local stakeholders from getting involved in the policy discussion (Tseng and Penning-Rowsell, 2012). The national and regional authorities are the key leaders in the management process (see also chapter 4). They hold a monopoly in the planning of new flood defence measures as well as the initiation of new projects. In contrast, the Triesting-Tal shows a passive role in the implementation process. The local scales not engaged in the decision-making practices, which leads to a strong top-down flood risk management system without local initiatives. The main consequence was that the local scale was not able to take

over the responsibility and tasks from the regional and national authorities, because the lack of local capacities and interests. Similar results could be found also in the integration of new members in the inter-local co-operation. This was organised by regional authorities mainly the WLV. Therefore, in terms of organisation and decision-making structures the Triesting-Tal has a strong hierarchical organisation structure with top-down decisions, communication and delegation policy (Watson et al., 2009). Consequently, the scalar arrangement creates only a shadow of balance of power between the national, regional and local scale. In particular, the regional scale in Austria tried to avoid encouraging the meta-governance structures. In the Aist study site, the grass-roots organisation *Initative fuer oekologischen und nachhaltigen Hochwasserschutz Aist* show a great interest in the current flood risk management debate. The influence of the grass roots organisation was the evaluation of the catchment management concept by the University of Natural Resources and Life Sciences at Vienna. The evaluation foresees the better integration of the use of structural and non-structural measures in the catchment management plan. In sum, the grassroots organisations encourage a communication process between regional and local authorities with citizens in the catchment (i15aut; i12aut).

7.1.4. Risk communication

Risk communication is interpreted as relational proximity between the different members (see also section 3.3). The analysis of the risk communication structure is based on the published work by Höppner et al. (2010) and McCarthy et al. (2008). The data shows similar results between the different study sites in terms of the mode of communication, tools and purposes (table 7.25).

Table 7.25: Risk communication in flood risk management in selected study sites

	Aist	**Ill-Walgau**	**Triesting-Tal**	**Bridgwater**	**Cockermouth**	**Morpeth**
Actors	WLV, BWV, local municipalities, consultant group, university, non-governmental group	BWV, local municipalities, private consultant group, utility companies	WLV, BWV, local municipalities, district (first phase)	EA, County Council	FAG, EA, County Council	EA, FAG, County Council
Purposes	improve relationship, involve actors in decision making, increase knowledge					
Modes	few-to-few (regional authorities and members of steering group), communication between regional authorities, few-to-many (general assembly meetings), dialogical two-way	few-to-few (regional authorities and members of steering group), communication between regional authorities, few-to-many (general assembly meetings), dialogical two-way	few-to-few (regional authorities and members of steering group), communication between regional authorities, few-to-many (general assembly meetings)	few-to-few, dialogical two-way (between County Council and EA), non-dialogical two-way communication (towards citizens)	few-to-few, dialogical two-way	few-to-few, dialogical two-way
Tools	flood risk assessment, flood modelling, meetings, scientific reports	flood risk assessment, flood modelling, meetings	flood risk assessment, flood modelling, meetings	flood risk assessment, flood modelling, meetings	flood risk assessment, flood modelling, meetings	flood risk assessment, flood modelling, meetings
Messages	expert-dominant, transparency (internal: yes; external: yes)	expert-dominant, transparency (internal: yes; external: partly)	expert-dominant, transparency (internal: partly; external: no)	expert-dominant, transparency (internal: yes; external: yes)	expert-dominant, transparency (internal: yes; external: yes)	expert-dominant, transparency (internal: yes; external: yes)

Source: own development

The main actors in the communication process are the technocrats from the regional authorities (in England: the EA and in Austria: the WLV and the BWV). The main reasons for this are that these organisations lead the overall flood risk management process (planning, implementation, funding and co-ordination between the different actors and authorities) and have the technical knowledge and expertise. This has an impact also for the type of communication. The communication process is important in the relationship between local and regional actors. Nevertheless, the interviews show

strong conflicts and barriers as well as misunderstandings between local and regional actors. A core problem is that the local actors have difficulties in the understanding the technical language, such as flood return periods. In the Austrian case study, the WLV and the BWV shows different approaches and concepts for the flood risk management, for example the use of different return periods for the standard protection (BWV: 1:100; WLV: 1:125) (Holub and Fuchs, 2009). Furthermore, the interviews show strong barriers and conflicts in the discussion between regional professionals and local politicians, based on lack of technology knowledge and expertise (politicians), but also lack of a common approach between the two organisations (i15aut). In summary, both organisations show strong interdependences. However, the implementation of the EU Floods Directive into national law requires some harmonisation between both organisations, especially regarding the return periods and flood defence standards.

In Austria, I identified clear misgivings from local actors towards regional-national actors because of the use of the expert language. Local actors do not have the knowledge, skills and understanding of the technical terminology, the concepts and ideas provided by the experts from regional or national offices. Therefore, the cases are characterized by a strong top-down communication approach. These conflicts and barriers have a negative impact for the interaction with the local actors in flood risk management. In particular, this has been a clear hindrance in the empowerment of local actors in the ongoing policy discussion. In Austria, for example, main barriers and conflicts were observed in the communication process between the two public authorities (WLV and BWV) with local authorities (see following quotes).

> Participant: 'I wonder whatever the system we have is clever that you have a [name] and a [name], because sometimes both organisations have some different understandings, meanings an views there (…) but I find it funny that even various technical data and results have been seen different between them. As a layman I imagine flood risk management is flood risk management and 1:100 flood event is a 1:100 flood event and that there is still are nuances here I do not understand' (Local Authority, Austria).

> Participant: '(…) in 2002, the HQ-100 has been re-defined with 320 m^2. You can here discuss for a long time how we ever come to this shift from 240 m^2 to 320 m^2. We spent hours of discussion with the regional authorities, because nobody explained us these dramatically changes in flood risk management policy' (Local Authority, Austria).

The modes of conversations (see table 7.25) are mainly organised by few-to-few numbers of actors, such as in Austria the main communication processes are between regional authorities and selected members of the steering group (e.g. chairman and director). Nonetheless, a second important role is the communication process between the regional authorities and the steering groups (in general, based on regular meetings every 5-6 weeks). Overall, the communication process shows a broader-dialogue, where both groups of actors exchange their idea, interests and concepts.

In contrast, I identified a fundamental change in the English cases. The English flood risk communication process has shifted from a non-dialogical communication process towards a more dialogue-two-way approach (see following quote).

> Participant: '(…) in [town] where they asked this question, well what if we have a lower standard of protection (…) because we might say to them well if … to provide a 1 in 75, yes, the scheme is only going to cost £10m. And they were saying of right, well let's … so they might say well actually if it's only £10m to provide a 1 in 50, why don't we do that and then we don't have to pay anything, but no, because you're not getting the benefits, and as you're now only moving these properties to there, you're not moving these properties at all and those ones not at all, so you're only moving those, so you immediately strike out that £2m… sorry, that £2m is going to be less because the benefits are less (…) so they're saying well can we look at a lower standard of protection, well yes, but you get less money from us' (National Authority, England).

The change was encouraged by the introduction of Partnership Funding and the development and interaction of FAG at local levels. The local actors forced the EA to start a two- way approach, where the local actors can bring in their views and ideas. In the communication process, the main tools are technical models and assessments, which often are produced by private consultant groups. In particular, in the study sites Aist and Cockermouth the actors mainly used models and scientific reports for the internal communication process. Local actors are disadvantaged in the communication process, if they do not have the level of expertise and knowledge to understand it. A second problem refers to the transparency and external communication process. The English study sites show a high degree of transparency in the communication process. The main reason is the strong involvement of civic groups in the decision-making process. A second justification refers to the strong accountancy rules and based discipline in England, especially to quantify and benchmark between the different communities (Swyngedouw, 2011). Overall, the key contributions are the level

of knowledge: skills and interest at local level in the risk communication process as well as the form of dialogue and use of language between the different actors (see also chapter 6). The communication process is more equally based, when local actors show a high degree of knowledge, like the case of Cockermouth, Morpeth or Aist. In these three study sites, local actors collaborate with technical consultant companies to achieve a more ‘adequate’ educational-professional background. Stakeholder engagement depends on transparency and 'adequate' language in the policy decision-making and flood risk management planning. The usages of highly technical language ensure only the power geometry between public administration and local actors, stakeholders and citizens. However, local stakeholders and actors have to 'learn' the technical language in flood risk management to discuss equally with the public administration. Nevertheless, this capacity strongly depends on local social and cultural capitals which have wider implications, such as uneven development within the country. In comparison to the Austrian study sites, the English study sites, especially Morpeth and Cockermouth, have a high degree of communication interactions between public administration and non-state actors, stakeholders and citizens. The key reason is the strong involvement of grassroots organisation in the policy decision and flood risk management process. In both study sites, the various actors and stakeholders have to be more active in the communication process to inform and to engage the population.

7.2.Dependency in partnership approaches

I identified various formalised frameworks which influence the stability of a network. The Austrian study sites show various regulatory conditions, which are top-down defined, but have a positive influence in the stability of the network, e.g. for the partnership funding scheme. The partnership funding rules are a critical top-down condition in the network discussion, where the vertical network displaces the horizontal networks (Cox, 2013). A key condition is the formalised contract between the different actors. The legal contracts provide a high security, especially for local municipalities, who never worked together in the past or for a long time framework, for example in the Aist co-operation. The contract includes various conditions, for example also in preventing the drop-out of

individual members from the network (i19aut). My findings show that the implementation of a steering group performs a high stabilisation factor for the organization itself. First, the steering group lead the communication process and interaction inside the network (i12aut). It undertakes various meetings with the different actors to ensure the survival of the network. The role of local actors depends on the self-realisation in the network. Active local networks, the director and the chairman of the inter-local co-operation play an important role in the cohesion between the members. Second, the shift of power and responsibility from local level towards an inter-local level ensure a more effective way in the interaction between the different actors, the planning discussion and the implementation process. The steering group acts as a buffer zone between the different interests and developments. The key aim is to reduce the level of frustration between each actor. Further regulatory factors are the common interests between the different actors (Castells, 1977). Flood risk management includes a wide involvement of the different actors at local and regional level. Key drivers are economic arguments, mainly the fear for economic prosperity in the region. This is a core aspect for peri-urban and rural areas, because of the lack of economic substitution. Consequently, the different actors are strongly interested in keeping the actual number of people and businesses in the region. The stability of the relationship also depends on the dependency / independency of each actor. In general scholars distinguished between power and resource dependency (Lee et al., 2012; Rössl, 2005a; Drogendijk and Andersson, 2013). Within the introduction of a standardised approach in the organisation structure of the inter-local co-operations as well as fixed rule system for administration processes and approaches, especially in relation to planning, approval and funding, the national Government introduced a framework which encourages the implementation of an inter-local flood risk management strategy. On the other hand, countries, such as England, without this administrative standard hindrance the development of catchment-wide flood risk management strategies and concepts. The implications are that lack of a clear legal construction may cause lack of unclarity and despotism in the country.

7.2.1. Power dependency

Further, I identified the power relationship between the different actors. The aspect of power is a substantial term in the network structure (Allen, 2009). This study analysed power dependency relations between local and regional or/and national actors. Overall, local actors are strongly dependent on the regional authorities. Nevertheless, the possession of power depends on the position of the actor in the interaction with the others (Cox, 2013; Sayre, 2005; Bues and Theesfeld, 2012). Theesfeld (2011) has made an important contribution in the power debate in policy discussion. She added the aspect of consequences of power in the bargaining process, which can be distinguished between relative bargaining power and the distributional effects on the bargaining. According to Dencker (2009), relative bargaining power is understood as the outcome of the relationship between different actors, which depend 'of one of the parties to this relationship on the other party to secure needed resources' (ibid: 453). Particularly in the study sites, I identified a strong dependence relationship between the different actors in terms of power and resources (table 7.26)

Table 7.26: Power dependency resources and impact in Austria and England

Characteristics		Consequences on bargaining process	Austrian study sites		English study sites	
			Upstream municipalities	Downstream municipalities	Middle class	Working class
Depending on natural resources	Elements at risk-risk behaviour	Relative bargaining power	--	++	--	--
	Preference	Relative bargaining power	-	+	--	--
	Exist costs	Relative bargaining power	--	++	--	--
Depending on government support	Potential power	Relative bargaining power	++	-	+	--
	Network power	Relative bargaining power	-	++	++	--
	Sanction power	Distributional consequences	+	-	+	--
Education and knowledge	Access to information	Distributional consequences	-	++	++	--
	Knowledge	Distributional consequences	-	++	++	--
	Cultural capacity	Distributional consequences	-	++	++	--

Source: adapted from Bues and Theesfold (2012): 279; --very weak position; - weak position; + strong position; ++very strong position

The dependency on natural resources (here mainly availability of retention area) has a key role in the flood risk management discussion. As mentioned above, the Austrian study sites follow an inter-local approach to reduce vulnerability in the catchment. A key objective is the implementation of flood storages in the river catchment, especially in the upper part. The main resources of upstream municipalities are the availability of land to store a large capacity of water during a flood event. As a result the downstream municipalities are strongly dependent on the municipalities in the upstream area. Similar results have been found in the aspect of time preferences. The negotiation processes

between the different actors can have a long time framework. The main reason for this is that the upstream municipalities have demonstrated large concerns about the projects including the lack of benefits for the upstream municipalities, as well as financial risks and costs and unknown interactions with new actors. The result is that the upstream municipalities have a lower interest and preference to engage in the co-operation compared to the downstream municipalities. It means that the upper part of the catchment has a clear advantage position than the lower part of the catchment (Bues and Theesfeld, 2012). Both variables have a direct impact towards the costs of leaving the partnership (exit costs). Exit costs arise alongside the negotiation process between the different actors (Meyer, 2010; Bues and Theesfeld, 2012). In general, high exit costs restrain co-operation. In this line, the different actors – especially those in a weaker position – try to send incentives to reduce the risk of failure and subsequent the exit costs. For example, the downstream municipalities transfer financial resources towards the upstream municipalities as incentive to co-operate and to ensure a fair financial arrangement between the different actors. The study sites show a long term bargaining process: the Triesting-Tal co-operation took over 10 years. This includes high transaction costs between the involved actors and conflicts between the local municipalities. The results show that the downstream municipalities show higher exit costs, because of their dependency on the upstream municipalities.

The English study sites show minor interests in the dependency in natural resources, because their key focus is on local-linear flood alleviation schemes insteadly the use of multiple flood storages alongside the catchment. In this case, this research study is focussed on the differences between local authorities with or without the involvement of local citizens in the flood risk management process. The results show that 'community support groups' – like FAG – include a key role in the engagement process of local citizens. Therefore, I distinguished between middleclass and working-class communities. In general, I noticed a greater lack of local community support groups in working-class communities. They are more focussed in wealthy-rural middle class communities (i33eng). The consequences are that local authorities as well as local citizens are less involved in the management

process. Consequently, local authorities with local support groups show a privileged position. The consequences are that communities without local support groups tend to move the responsibility and the involvement towards county council level, for example the cases of Bridgwater. In Bridgwater, the key actors were the county councils (Sedgemoor for Bridgwater) in the negotiation process (i40eng; i41eng).

The second type of power dependency refers to the aspect of government support. The regional and national authorities have in the six selected study sites a key role in the management process. The technocratic experts support the local actors in various issues. An overall key objective is to reduce the vulnerability in the catchments as well as economic growth. As already mentioned the local actors are strongly dependent on regional and national authorities in terms of knowledge, planning permission and funding. In Austria, for example, the downstream municipalities have strong support from the government bodies. The government is committed to building a co-operation and management plan for the catchment to reduce the transaction costs with each individual solution (i10aut). Local actors in Morpeth and Cockermouth have been able to build a network relationship with Member of Parliament to ensure their needs and interests.

The third issue refers to education and knowledge characteristics. Both features play an important role in the interaction with regional and national authorities. Also other scholars underlined the importance of knowledge and education or social capacity to interact and to ensure their interests (Kuhlicke et al., 2011; Bues and Theesfield, 2011). Good knowledge, cultural and social capitals have been a key point in the interaction with the regional and national authorities. This has been shown in several empirical results.

> Participant: 'they were quite intelligent people, professionals in their own right with different skill sets, and I had a meeting with them and they presented to me a cost proposal for constructing an overflow channel to take out a meander just downstream of the town and reduce flows that way, and it was quite professionally put together (…) there was a bit of a turning point that came about and rather than being a sort of lobbying group they almost became ... well they did become members of the project team, and we ran an appraisal and produced a business case' (National Authority, England).

The study sites with community support groups, such as FAG, show a higher interest and knowledge in the ongoing flood risk management discussion (see also section 6.4). This shows their interaction and network with the national Government and its bodies. Similar results have been found in education and knowledge characteristics, which play a key role in the social structure in flood risk management discussion. A key actor is Defra for capacity building at local level in England and Wales. However, the training oriented mainly to local authorities (technocrats), especially LLFA is to manage surface-runoff and not in improving the capacity of local citizens (Defra, 2010a). In this line, the community support group has a more critical role in the ongoing discussion. Subsequently, communities with local grassroots organisations tend to co-decide the local flood risk management plan, which is a key issue in partnership funding policy. The outcome will be that some local authorities are able to engage local citizens to get involved in the flood risk management process and to ensure their interests. The main challenge refers to the 'space of resistance'. The involvement of local citizens includes also the capacity and power to change the local flood risk management schemes, for example in Cockermouth. Similar developments and problems were identified with the new spatial and land use management planning policy in England (see also Haughton et al., 2013).

A further key aspect in the power discussion is the use of power in the decision-making practice. The use of power depends on the tasks, objective and decision-making practices in the policy discussion and social interaction (Theesfield, 2011; Sehring, 2009). The following table summarised the main results from the empirical investigations.

Table 7.27: Main questions in the social interaction between the different actors and stakeholders

Actors	Tasks	Specific decisions
Upstream-downstream municipalities	Flood storage	Where to build flood storage?
Inter-local co-operation-land owners	Land Clearing debris after flood event	Compensation for land use restrictions
Between members of the inter-local co-operation	Financing	Who is paying, who pays less?
Inter-local co-operation with individual municipalities	Spatial and land use management planning	Restriction in the use of local spatial and land use management plans
Inter-local co-operation – regional and national authorities	Funding	Who is paying, who pays less?
Steering group – inter-local co-operation	Planning process	Who is involved? How are operational rules defined?
Land owner	Releasing water into the storage areas/water stored in flood storage area	Who is responsible for water released? Who is favoured?
Inter-local co-operation-municipalities	Local-linear flood alleviation scheme	Who refers from paying, who pays less?
County council – private actors	funding	Who refers from paying, who pays less?
County council – FAG	Planning process	Who is involved? How are operational rules defined?
Local actors – national authority	funding	Who pays, who pays less?
Private - private	Funding	Who refers from paying, who pays less?

Source: adapted from Theesfield (2011): 92

Local actors need the support (financial and knowledge transfer) from the regional or national authorities. Furthermore, the discussed study sites show a high dependency of regional support in terms of negotiation with local land owners. The dependency is based on formal and informal rules. The regional authorities lead the communication and decision-making process. The domination changed with the self-realisation of local actors in the flood risk management discussion. In Aist for example, the interaction between the different local and regional actors is based on a more equal level, because the local actors show interest and involvement in the decision-making process. The situation in the Triesting-Tal study site is different, where the regional authorities dominate the discussion and the decision-making process (see section 6.4). On the other hand, regional authorities

have the permissive power for flood risk management. The local authorities depend on the final decision from the regional authorities. Without the permission from the regional authorities, the local actors have a limited scope in the flood risk management discussion (see section 4.2.3). Power dependence shows a key factor for the creation of partnership approaches for the creation of partnership approaches. This places implicates communities in a weak power position, for example downstream communities in an inter-local-co-operation. Implications are that the partnership is more costly for the downstream communities.

7.2.2. Resource dependency

In the Austrian study sites, the downstream municipalities strongly depend on the availability of land in the upstream municipalities. Lee et al. (2012) and Rössl (2005a) argued the resource dependence as a key factor in the relationship between the different actors. A shortage of land for the implementation of flood storages has been an important stimulation in the development of the inter-local networks (i19aut; i5aut; i12aut; i15aut). The resource dependency increases, when the inter-local flood risk management plans transfer security benefits from the upstream towards the downstream local municipalities. A second resource dependency was identified in the technical knowledge. Here, the local actors are strongly dependent on the regional authorities (see also section 6.4). A third source is the economic dependency in the region. The selected study sties show 'classical' peri-urban / rural economic difficulties. In the regions there are only a few medium and large-sized enterprises. In Schwertberg (Aist study site), for example, the 2002 flood hardly affected the two main local enterprises, which have an inter-local economic influence. This affected the starting of the inter-local network (see also section 5.1). Similar results were identified in England, where insurance challenges stimulated the collaboration between local and regional actors.

7.3.Barriers and limitations of adopting a partnership approach

Main barriers are the conflicts of provision of land in the upstream area for flood protection for the downstream municipalities and compensation payments. The Austrian study sites, for example, show the 'classical' upstream-downstream conflicts as a main barrier and challenges in the

development of partnership approaches in flood risk management. A key problem is lack of win-win negotiations. The upstream municipalities gain no or less benefit from the planned and implemented flood alleviation schemes. On the other hand, downstream municipalities are more willing to implement local flood alleviation schemes instead to compensate the upstream municipalities. Similar to the English study sites, the question of funding has been a central point in the creation of partnership approach. The second key barrier refers to the mistrust and concerns between local and regional-national authorities. In particular, the EA had strong concerns to co-operate more intensely with local actors and stakeholders in the flood risk management planning. However, the partnership funding requested a change in the interaction between the EA and local actors and stakeholders. The results have demonstrated that the interactions are still strongly organised in a top-down way. Examples are the actual national contribution (FDGiA) and top-down regulation in neighbourhood planning and new community infrastructure levy. On the other hand, the partnership funding and neighbourhood management planning allows local communities to gain a stronger position in the decision making process. A key problem refers to the 'local trap' or local lock in with respect to decisions at local level as well as uneven developments between communities with a local management plan and communities without any organisational structures. Furthermore, an important influence has been the local interests and risk perceptions. Local authorities have no or fwe interests or low understanding of flood risk. In summary, the risk perception shows a negative correlation in the negotiation process. A fourth problem refers to the co-operation itself. The partnership approach shows no day-to-day business for the involved partners. The co-operation requests high transaction costs, especially in the creation and beginning phase, because the members of the co-operation had never worked together in a previous project or had had no common historical developments and overlaps. These factors show strong barriers towards the creation of a partnership approach in flood risk management.

7.4.Key findings

The empirical results are currently characterized by a lack of sufficient partnership approaches with the different actors and stakeholders. Some of the study sites show a higher integration in one field than in others. Furthermore, the interviews show strong barriers and conflict in the discussion between regional professionals and local politicians, based on lack of technology knowledge and expertise (politicians). Third aspect refers to the initiation process. The Aist, Morpeth and Cockermouth study site, in contrast to the other study sites, include a strong bottom-up approach in the development of a partnership approach. This answers the aspect, why there the partnership approach shows a high interest in the overall strategy planning process as a successful factor in the implementation process. Policy actors should try to encourage the co-operation to take over more responsibility as well as to close the gaps and barriers within the co-operation. However, the results have highlighted a splintering of the flood risk management system. Graham and Marvin (2001) defined splintering of infrastructure as a 'spatially selective' (ibid: 197) policy and development. The authors argued that the splintering infrastructure policy influenced also the social relations, mainly by an exclusion of areas with low-income from flood risk management. The outcomes are 'infrastructural bypasses', which 'refer to the development of new parallel or substitute infrastructure networks that facilitate the development of contestable markets' (ibid: 168). Consequently, the results are that we have a 'splintering' nation, where municipalities with local resources, such as knowledge, experiences, income or language, have been privileged in flood risk management policy. Graham and Marvin (2001) described the transformation of a homogenising policy towards the creation of 'hubs' across the country. In England, for example, flood risk projects were realised mainly because of high interest for the County Council or strong local pressure group whilst excluding areas missing necessary frameworks. This challenge increases when the demand is weak or declining (in shrinking processes).

In this chapter, I presented the results of analysing the proximity in flood risk management in both countries. The main findings are:

- A central obstacle is the low involvement of the Federal States in Austria in local spatial planning concepts as an advisory to control the spatial and land use management acts for flood risk management. Consequences have been limited exchange and harmonisation of local spatial and land use management plans.
- Two of the selected study sites in England developed local neighbourhood land use management plans with local actors and stakeholders. However, the focus is oriented towards housing, local economy, heritage and local environment. In general, the aspect of floods plays a minor role in the overall plans.
- In Austria based on the political structure, this thesis demonstrated various spatial misfits between the flood risk management plans and flood hazard.
- The three study sites in Austria follow a clear inter-local flood defence strategy in contrast to the English empirical results. Analysing the catchment management plans, they encourage the achievement of multiple benefits from the strategic proposals, e.g. by increasing biodiversity or by improving the river continuity. In respect to flood risk management, the overall goals are the implementation of flood storages in the catchment. However, the three study sites still have gaps in the implementation of post-flooding measures.
- The involvement of private actors in the co-operation process has encouraged other local authorities to take part of the inter-local co-operation. However, from the interviews it emerged that the negotiation process was longer and more complicated, because of the different interests. Throughout, past co-operation between the regional authorities, local authorities and private actors were given in the region. These experiences helped to identify and to encourage the private actors to take part in the inter-local co-operation.

8. Conclusion

Flood risk management has changed over the past decades. The 'classical' flood management approach includes a strong focus on engineering solutions at local level. The changes in the management system – from a security-based approach towards a risk-based approach – includes a combination of structural and non-structural measures, interdisciplinary working and catchment-based approaches. This enforced also a new focus on the implementation of flood alleviation schemes, especially to take into consideration their spillover-effects in flood risk management, such as linkages to other intra- and inter-regional networks. The aim has been to achieve a more holistic policy (Kubal et al., 2009; Johnson and Penning-Rowsell, 2010). The latest changes include a shift in flood risk management perspectives in Austrian and England. Key developments, such as financial and economic developments and ideologies, show a strong influence on the actual discussion and policy framework, especially the shift from the priority on agricultural productivity and food security towards economic growth and as latest step outsourcing of the flood risk management. Overall, policy ideologies influenced the transformation process in flood risk management and the governance structures in the countries as shown in this thesis. With the downscaling of power and responsibility in the flood risk policy towards local actors, I observed new scalar architectures and new governance structures in state regulation (Brenner, 2004). The empirical results show new governance structures, mainly based on the new politics of scale (see also chapter 7). In England, the national organisations (Defra and EA), have dominated the flood risk management system in terms of funding, planning, implementing and maintenance. Partnership Funding, for example, has enforced a re-design of the involved actors and stakeholders in the policy-decision practises and question of responsibility. I found similar developments in the Austrian study sites, where the inter-local partnership approach changed the decision-making practice. A key aim is to develop an inter-local flood risk management approach, using agricultural land use for flood protection. Subsequently, the number of actors has increased in the decision-process from two actors (one local authority and regional authority) to several state and non-state actors (see also section 4.2). However, the actual

scalar arrangements in the Austrian and English flood risk management policy demonstrate that the central state remains completely dominant, in terms of funding and setting the rules.

The new policy requests a stronger involvement of local actors in the actual policy discussion. I have argued that the dynamics in the production of scales allows also the changes of interaction of local actors (scale jumping), especially by the FAGs. In terms of Cox (1998), the space of depending for the FAG is parish council level, where the members define and influence their specific conditions, e.g. design of flood defence scheme; and the regionally and nationally level as the space of engagement, where the FAG interact to ensure their interests. New actors have closed the political vacuum to ensure and to satisfy their needs and interests. Subsequently, the network as well as the knowledge and the habitus have become a central factor in the policy process. The consequences were that the introduction of the partnership funding scheme led to a shift in the state spatial process (Brenner, 2004), away from a single-equal spatial strategy towards a multiple – individualised approach, where capability of local actors can secure their interests and needs.

An interesting observation is that the local authorities, especially the downstream communities, enforced an overall flood risk management policy discussion in the catchment; based on a strong pressure from the local businesses for the relocation of their businesses in area (see also section 4.2.4). Consequently, the relocation of these businesses would cause strong negative socio-economic impacts to the region. Therefore, a key driver was the downstream community Schwertberg in the Aist study site. Based on the Aist regional studies published in 2004, the regional authorities in co-operation with the downstream communities started to re-organise their inter-local co-operation. The catchment management plan foresees the implementation of inter-local flood defence measures, e.g. flood storages, forest management plan. The inter-local co-operation shows in contrast to the other two study sites a more active role in the planning and the strategic processes. Especially the steering group shows an active role in the overall implementation process. Moreover, they initiated individual strategies and planning concepts (see section 6.4). However, in respect to the identification and integration of new members, a symmetric relationship between the regional

and local authorities is present. In the initiation phase, the regional authorities as well as some downstream communities have forced the communities to take part in the inter-local co-operation. The co-operation process, however, does not include any changes in the formal legislative competences, but a shift in the power structure. In England, for example, I identified a shift of power structure from local politicians towards local actors like FAG. On the other hand, the Austrian inter-communal co-operation enforced a shift in the power structure from local municipalities towards the inter-communal board. This has been especially the case for negotiations with local land owners, communication and contract design. Nevertheless, the inter-local co-operation has no power in the local spatial and land use management plans (i13aut). I have found that political mobilisation at the local level is often driven by economic reasons, such as business interests (e.g. Schwertberg), new residential properties (e.g. Leobersdorf or Bridgwater) or flood insurance (e.g. Cockermouth or Morpeth). At the same time, the engagement of local actors, stakeholders and citizens depends on the economic, cultural and social capital, such as habitus, or house demand.

In England, I identified a shift of the power structure from local politicians towards local actors like FAG. The Austrian inter-communal co-operation enforced a shift in the power structure from local municipalities towards the inter-communal board. This has applied especially for negotiations with local land owners, communication and contract design. Nevertheless, the inter-local co-operation has no power in the local spatial and land use management plans (i13aut). I have found that political mobilisation at local level is often driven by economic reasons, such as business interests (e.g. Schwertberg), new residential properties (e.g. Leobersdorf or Bridgwater) or flood insurance (e.g. Cockermouth or Morpeth). At the same time, the engagement is cultural and social embedded, such as habitus at local level or house demand. However, future limitations in the localism approach refer to the introduction of the new community infrastructure levy by 2014. The new community infrastructure levy includes various restrictions in the introduction of a new local levy, e.g. 'roof taxes'. Furthermore, the infrastructure levy includes using the levy for all infrastructure projects, e.g. streets, schools, affordable housing etc., instead of one propose like the Bridgwater ‘roof tax’ for

flood risk management. Additionally, within the introduction of the new levy system the amount of the levy is based on the economic viability of the local authorities and it will be independently reviewed. In the case of Bridgwater the economic viability is very low. This may increase the fear that the Government suggests to request quite low levels of contribution from the citizens and no charges from any commercial developments, which would stop the tax collection for the town. These difficulties in respect to the community infrastructure levy the Government follows a strict top-down localism with stronger restrictions for the local authorities. With the fear of a step backwards towards 'top-down' philosophies like the New Labour model (Haughton and Allmendinger, 2013). In both countries the rescaling process emphasizes a shift across the already existing scales in a minor sense. The main changes were observed in the introduction of new scales, such as meta-district governance arrangement in Ill-Walgau or the Aist co-operation or new scales like Bridgwater, Cockermouth or Morpeth. The consequences and impacts were a change in the regulatory settings and administration practice. The regional authorities, for example, had to develop catchment-wide management plans instead of local solutions, which need different modelling techniques and data (Evans et al., 2002). Influentially, the impact was also the interaction with more than one actor in the planning, design and implementation process instead of one actor (one local authority).

8.1.Answering the research questions

The following section addresses the research questions (see section 1.4).

Question 1: Which mechanism and action influence the change of the actual scalar arrangements?

In the past two decades, we observed a shift in the scalar re-arrangements in flood risk management policy. Due to the recent developments the role of the state and individual responsibilities for flood risk management are now under review (Defra, 2012). This review has been driven by various developments: financial and economic crises (Defra, 2012; Featherstone et al., 2012), implementation of new legal requirements (EC, 2000; 2007) and recent flood events in England and

Wales (Pitt, 2008; Defra, 2005). The new policy agenda tried to enhance responsibilities of different actors in flood risk management and reduce the controlling role of central governments. This implies a change in the relationship between the different actors (Pearce and Ayres, 2012) including the creation of a 'new state space' in the policy discussions (Brenner, 2004). I identified, the re-scaling process enforced a change in the social structure and interaction between the different actors with new working relations and interactions. First, the selected countries show an increase in the number of actors in the ongoing policy discussion (equalling a new governance framework). Second, the new scalar re-arrangements empower local actors. Third, the local actors are more involved in the decision-making process. However, I have showed that the outcomes and effectiveness of this process strongly depends on local capacity to use these opportunities. In England, for example, I have identified that especially the middle class professional groups with expertise and skills (e.g. planners or lawyers) have gained from the new policy direction. In summary, the scale jump empowers local actors to get stronger involved in the policy discussion. However, this strongly depends on the local interests, identification with the project and idea and resources (capabilities). This can be observed in both countries. The escapes from the scalar fixes put the local actors in a stronger position in the management discussion. However, the co-operations are not fully using this power and position. One reason is the interdependences between the different actors regarding to interests, objectives and capability as well as the problems of parochial and particularised local policy directions (Kitchin and Wilton, 2003). On the other hand, Morpeth and Cockermouth are using the scale jumping in the reorganisation of social interactions to gain power from national level to achieve their desired interests. The actors show a high active role in the actual policy interaction.

Furthermore, the scalar re-arrangement encouraged a new organisational culture, skills, knowledge and competences (Clifford, 2013). The remaining question is if the new territorial scale in flood risk management is more than only a decentralisation of responsibility. In sum, the new territorial scale encourages local actors to get involved in the ongoing decision-process. This included a new space creation for local actors, which included a shifting of power towards non-state actors such as FAG

(Allen and Cochrane, 2010). Subsequently, the funding system in England foresees the promotion of wealthy-rural areas, where local actors want and have the experience and capacity to wield it. Nevertheless, this study shows that the 'successful' implementation of new policy strategies refer to questions of local capacity and legitimacy of the involved actors, especially to the FAG (McCarthy and Prudham, 2004). The change is that communities who fail to achieve these criteria will lose out from this new policy (MacLeod and Goodwin, 1999).

Question 2: How cross-scale dynamics have influenced national flood risk management strategy?

The English results show a strong local involvement in the flood risk management planning in terms of funding, planning and decision-making practices. The localities show high interest and capacity to have a strong voice in the decision-making practices. In particular, the non-state actors have achieved a very important role in the flood risk management system (outscaling). The empirical results show that local actors and stakeholders use network connections at regional and national level to intervene to ensure their interests and needs are realised (scale jumping). The outcome has been a change in the power construction in favour of local elite groups. The impact strongly depends on the study sites and local circumstances. The Austrian results focus more on changes in the boundaries construction and flexibility in the planning process. The use of 'soft spaces' play a crucial role in the planning and implementation process, because of the challenges and conflicts with local land owners. The regional authorities and inter-local association have to update regularly their concepts and management plans. On the other hand, 'fuzzy boundaries' are a central aspect in the Austrian study sites. The objective is to implement inter-local flood alleviation schemes to reduce the vulnerability in the sub-catchments. The Austrian flood risk management policy at regional level favours formalised sub-catchment flood risk management plans, contrary to England. However, also here it depends strongly on the Federal State. Although the national Government provides legal frameworks for inter-local co-operations, the national authorities do not only support catchment-wide flood risk management.

National governments play a central role in new scalar re-arrangements. The central government defined the change of role and relationship between different scales, however failed to answer questions of regulatory capacity and power at local level (Brenner and Theodore, 2002). Until today, new territorial scales debates are focused on emphasising lower public authorities to encourage their role and responsibility in policy process as a main characteristic. These include a shift of responsibility and duties between national and local bodies, but often without a change of legal framework or shift of additional resources as well as power between different scales (Coaffee and Johnston, 2005).

In summary, both countries are characterized by main differences in the direction of networks (vertical-horizontal). Main dissimilarities between Austrian and England are especially based on the institutional natures, above all in the formal rule settings and administration practices. First, the Austrian study sites include a fixed formalised rule system for the creation of partnership approaches. Secondly, the regional authorities (WLV and BWV) provide various instruments for inter-local solutions in flood risk management as can be seen in the administration practices, such as the Regional Study as a planning instrument. Third, a key issue is the lack of interest of the EA to introduce inter-local flood risk management plans to avoid conflicts and discussions with local authorities. In England, the politics of change enforced a new policy strategy for the national authorities (especially EA) to interact with local actors and stakeholders. Also, partnership funding enforced the local scales to get more involved in the decision-making practises. This meant that local actors and stakeholders influenced the policy and implementation process.

Question 3: What are the barriers and limitations of new scalar re-arrangements in terms of network governance, and what are their social and political functions and consequences?

Local engagement strongly depends on their social capacities, such as knowledge, motivation/self-interest, economic, network, organisation and procedural (Kuhlicke et al., 2011). Nevertheless, the results show generally that the role of local partners has become more relevant in the discussion.

The EA had to open their discussion to the local stakeholders more than by a consultant approach. The new partnership funding offers the possibility and opportunity to bring more local solutions and ideas into account (e.g. Cockermouth). The new funding policy can be seen as an important driver in the developing of a vertical partnership approach, where the policy engages more effectively non-state actors in the process like the new spatial planning framework (Haughton and Allmendinger, 2013). Furthermore, partnership funding is well embedded in the political ideology of new localism approach as well as 'hollowing out' policy of the Government.

Co-operations can be seen as an ideal instrument for stakeholder engagement in flood risk management. Throughout, with current pressures on local authorities to reduce the spending and in parallel, a reduction in the central state's resources, co-operations has been seen as a possibility to both increase the 'value' of budgets available and to increase efficiency in using current public funds and resources. Furthermore, they may allow direct and indirect benefits including harmonisation of spatial and land use management plans. From the interviews most mentioned the advantages (table 8.28) are the access to additional resources (e.g. funding, land).

First advantages mentioned from the interviews are the possibilities to pool the budgets of local authorities. Due to the reduction of local spending, a co-operation allows savings to be made. Furthermore, the financial burdens are generally lower than for individual solutions. Furthermore, the overall financial volume is higher, which leads to a higher economic power, pressure and a higher potential to realise more flood alleviation schemes at the same time. In respect to small communities, the inter-local co-operation approach is the only possibility to realise any flood defence measures because of the contribution of local authorities in partnership funding scheme. Secondly, the co-operation can ask for additional financial resources more easily. The Aist-co-operation, for example, had access to European – Regional Development Funds. However, rural development programs need a formal inter-local co-operation. The third advantage is the more efficient use of the financial resources and planning instruments. In the catchment-based planning or sub-catchment based management planning, regional and local authorities are more keen to

avoid contract defence measures, equal for spatial and land use management plans as well as emergency management plans. For example, the inter-local co-operation has the possibility to ensure natural retention or flood storage areas in the upstream communities, which is less expensive than individual solutions for each community.

Table 8.28: Advantages and disadvantages of co-operations in flood risk management

Advantages of inter-local co-operation	**Disadvantages of inter-local co-operation**
Enable a pooling and sharing of monetary resources	Only re-imagination of fair sharing of balance of power
Access to additional funding schemes	Cost-intensive and time-consuming (higher transaction costs)
Efficiency use of financial resources	Risk of failure and insure outcome
	Disaster driven
	Imagination of fair sharing of costs and risk burdens

Source: own development

Nevertheless, besides the advantages of co-operations, the literature and results from the interviews listed a wide range of potential risks and disadvantages. In general, a co-operation is not a 'business as usual' situation for the different members due to the high risk for each member (van Huijstee et al., 2007). Firstly problems related to a fair sharing of power between the different actors. The key problem within a co-operational approach is the shift of power to a steering group, who manage the co-operation. For example, usually 'large' communities are members of the steering group in the inter-local co-operation agreement. The consequence is that 'small' members often have less power in the overall decision process. A key aspect is to reduce the power of 'large' members, e.g. supermajorities are required for certain decisions. A second problem refers to higher transaction costs (Hagspiel, 2001), especially in the short period (see also section 7.1.3).

Question 4: What is the role of proximity in shaping the opportunities and barriers for partnership activities in flood risk management, and what are their social and political functions and consequences in flood risk management?

By analysing the empirical results, scalar arrangements also influence the interaction and engagement between the different actors, stakeholders and citizens in the policy decision-practices. Nevertheless, the empirical results are currently characterized by a lack of sufficient co-operation between the 'local' actors, stakeholders and citizens as well as with the regional authorities.

While examining the partnership approaches in the different study sites, the example of Cockermouth showed a move beyond the participation or partnership approach. Specifically, using the term co-production adopted by Albrechts (2013), Cockermouth now follows a co-production instead of a partnership arrangement. 'Coproduction looked upon as the organized practice that constructs and managers a 'civic realm' (Roy's term, 2009: 160) equips citizens' organizations to challenge, resist and comply state governmentality' (Albrechts, 2013: 51). The main outcomes are common knowledge of production and exchanges, new settings for self-rule norms and populist mediation, where organisations like FAG act and present itself as 'bridging organisations' between state and civil society (Roy, 2009). From the empirical results, I found few changes in the power construction between national, regional and local actors and stakeholders. In particular, study sites with no or little local engagement had minor knowledge transfers between the different scales. The objective was to keep a hierarchical relationship based on specific – technical knowledge at national or regional levels to ensure their position in flood risk management policy. The national and regional authorities established a powerful position. The outcome was to use specific languages and knowledge with the consequences to stabilise power positions by national and regional authorities as well as organisational justification and legitimating to act. In the study sites the discussion between national, regional and local scales changed to a more equalised interplay between the different actors. Also between the new scales I observed different power constructions. Scales with 'correct' habitus (see section 6.4), which is the nature of practices in my case in decision-making processes, influenced the planning process for their purpose and interest (see section 7.1). Binder (2012) identified cultural and social capitals as resources, where actors and stakeholders are qualified to interact for to interact with 'externals' at different scales.

Thus, an asymmetric relationship seems to be dominated by the monopoly position of the regional authorities in relation to technical knowledge and power. The empirical results indicate a low willingness to request more tasks (responsibility and power) from the regional authorities. One reason is that the local authorities expected that the regional authorities are to be responsible for defining and organising the flood risk management in the region with the impact that the rescaling process enforced new boundaries, but without engaging with the local scales which shows only an imagination of more democratic processes (Fatti and Patel, 2013; Razafindrabe et al., 2014; Allen and Cochrance, 2007). Nevertheless, in the literature the main barriers to efficient rescaling processes include the gap in the transfer of power and resources to ensure the local capacities to manage the new tasks (McCarthy and Prudham, 2004). However, the empirical results demonstrated that a further key barrier is the lack of interest at local scales to use the possibility to engage in flood risk management policy. In sum, all study sites show an asymmetric relationship between the national and regional authorities (EA, Defra, WLV and BWV) and members of the inter-local co-operation. Jessop (2004) referred mainly to two key aspects: (1) society, especially different agents, acts interdependently from each other and (2) possibility of different linkages between different scales (vertical, horizontal, and diagonal). The regional authorities have the key role in the overall planning and strategic management process. Within this concentration of power towards the regional actors, the relationship is dominated by the monopoly position of the regional authorities based on technical knowledge and power (Foucault, 1982). With respect to floodplain dwellers, flood risk management is not on everyone's top-priority list. In general, flood risk management plays a less important role in current society debates, also in relation to stakeholder processes in flood risk management (i19aut; i26aut). This includes the minor interest of engagements in public policy debates. Other key problems are the mistrust in public administration as well as asymmetric information levels. However, 'community based disaster risk reduction initiatives always depend on such established community owned institutions' (Surjan and Shaw, 2009: 430). The authors

underlined the focus on the given organisational and institutional structure to understand the success or failure of stakeholder engagement process.

8.2.Social impact and further research

A number of problems, concerns and challenges have been addressed in this thesis. A key problem refers to the question of fair sharing of risk, power and responsibility between the different actors, stakeholders and citizens. This remains often unclear or in favour of national or regional authorities, such as financial risk-sharing in the English partnership policy. In particular, the English study sites show a lack of transparency in the financial transactions. A central question refers to the use of local financial contributions. At the moment, the financial contributions from the localities have been mainly used for capital works. The strong focus on capital works and financial squeeze for maintenance shows a greater focus on new flood alleviation schemes and less on future requirements. In overall, I found no evidence that local policy decisions are more economically efficient (e.g. Cockermouth or inter-local co-operation) or social equitable (e.g. Morpeth) in comparison to regional or national decision-making practises. A clear hindrance and barrier is local level itself, which has become a central policy target in the new politics of scale. This included also a stronger financial contribution of local and non-state actors in flood risk management, especially the empirical results from England show a 'hollowed-out' effect based on local and (especially) non-state contribution means a crowed-out effect of national contribution, because of the expectation from the national Government that the private sector will close the financial gap. In sum, an increase in the private contribution can increase the national expectation to reduce the national budget with the outcome that the private sector has 'crowded-out' the national Government. Nevertheless, the actual development shows no evidence that the local and non-state sectors are able to fully fill the financial gap based on the fiscal squeeze and spending cuts (see latest announcement from the national government (HM Treasury, 2013)). The empirical results from the two selected countries demonstrated an explorative approach to understanding the new politics of scale development in Europe. In sum, I observed two main developments in flood risk management, mainly vertical and

horizontal partnership approaches. The selection of partnership approaches and directions are mainly based on institutional settings and frameworks as well as national and regional flood risk policy. Flood risk management can be described as a result of political discussion and outcomes broader than technical and engineering solutions, concepts and ideas.

The partnership concept is a central challenge in the discussion and realisation. Key challenges refer to the questions of who is the promoter of the co-operation, who is monitoring the co-operation approach and how to engage local stakeholders into the process. In particular, no or little interest of the community includes a strong barrier in the building and involving in the co-operation. The selected study sites are often unclear about how to engage local communities to participate in the decision-making practices. The empirical results confirmed that regional or national authorities have not developed any effective instrument for community engagements; mainly the local stakeholders engage themselves. Communities with no or low interests, such as the Bridgwater or the Triesting-Tal co-operation, are not involved in the decision-making practices. The outcome is that the regional and national authorities need a local community with existing structures and interests. Some of the selected study sites show the capacity of local actors and stakeholders to understand and to organise local initiatives. However, key preconditions are local social and cultural capitals. Lack of these conditions implies great difficulties, if regional or national authorities downscale tasks and responsibilities to lower public authorities. In Austria, the study sites do not show any engagement of local stakeholders in the policy decision, except in a few cases in the Aist study site. In England, mainly local elite groups have been involved under the umbrella of FAG. This raises the question of legitimacy, especially for the non-democratic elected FAG in England. A further challenge refers to the involvement of local ideas and concepts in the policy process. In England, for example, the localism policy is more rhetoric instead of including local solutions in the flood risk management. Examples are the restriction of the development of new financial instruments or development of neighbourhood spatial and land use management planning, where both instruments need the formal approval from national authorities. In fact, the new localism policy limits local freedom, how to

organise and to ensure the local contribution or development of local strategies. Especially low income communities have not been allowed to introduce or increase taxes or not to follow an economic growth strategy. Moreover, the administration burdens for local actors and stakeholders. Problems of accountancy are based on quantitative data for benchmarking processes (Swyngedouw, 2011). A key question refers to social justice and equity, which plays a central role in the development of partnership funding. In Morpeth, for example, the County Council has closed the financial gap by placing financial restrictions of further projects. The County Council are not planning to close every partnership funding project planned in the area. This is a clear problem for communities with a lower average income compared to Morpeth. The main reason for this is the strong interlink between local FAG in Morpeth and Northumberland County Council. Finally, the partnership approaches have various advantages and disadvantages, but often policy makers and academic scholars see them optimistically. Regional and local authorities have a more realistic view of the negative effects of a co-operation.

The empirical results show that some scales were privileged, which can be interpreted as scale gains from the scalar re-arrangements to ensure – in terms of Allmendinger and Haughton (2009) – their hegemonic status, mainly by using specific strategy in negotiation process with national and regional authorities. Following Allmendinger and Haughton (2009) a further central discussion point is not only the questions of 'gainers' and 'losers' in scalar re-arrangement, but also the interaction between the scales. In this thesis, I analysed the interaction between scales in terms of governance. The scalar re-arrangements, especially in England, involved in the policy decision-making practices of various public stakeholders, which normally were never involved in the past. This included more resource intensive negotiation interactions because of an increased number of actors and stakeholders in the discussion and decision-making process. Additionally, non-state actors and stakeholders acted as 'partners' or lobbying organisations to influence the decision-making process for their 'community' with no wider exploration at regional level. The scalar re-arrangement has had a strong influence in the governance arrangement and settings, but also in the decision-making

system, where different actors and stakeholders have used new ‘strategic and tactical manoeuvre’ (Allmendinger and Haughton, 2009: 631) to ensure their interests. An interesting observation from the empirical results is the involvement of grassroots organisations in the planning process. The involvement of the FAG, for example, has had a strongly influence in the planning process, where the new scalar arrangement has moved from a ‘classical’ hierarchical planning approach towards exercises of ‘soft space experiments’ (Haughton et al., 2013). The outcome was a shift from elected politicians decisions towards non-state actors decision making-processes with disadvantages of highly localised planning process, increased charity hazard problems and the potential of a environmental racism policy as a consequence (Elliott and Pais, 2006), where low-income and minority communities, which lack social and cultural capital and capacity as well as economic power or national strategic interests were excluded from the policy process or not fully integrated.

Overall, the general lessons are:

- communities with higher socio-economic standards are more likely to ensure their interests in the new scalar arrangements, because of their social and cultural capital capacities – leading to social inequity;
- local communities without this capacity have a lower voice in the decision-making process with the consequences to get less attention by the regional or national government;
- local champions play a limit role, because of the few or no interaction with other communities or inter-local co-operations are given; the study sites have no or limit exchange with others; and
- central challenge is the connection and integration of localities in the policy discussion and decision-making practice.

Nevertheless, there is need for further research studies in this field. A key question refers to the impact of modes of governance towards the creation of partnership approaches in flood risk management. Also the aspect of social justice, transaction costs, accountability and legitimacy in

partnership approaches need more in-depth studies. In reference to the implementation of flood storages, there is a strong need of further research in the understanding of endowment – effects between public authorities and farmers as well as their motivation, barriers and challenges of the implementation of flood storages at their land.

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Appendix

Appendix 1: Details of interviews

Code	Organisation interviewed
i1aut	Regional Authority
i2aut	Academic organisation
i3aut	Academic organisation
i4aut	Local Authority
i5aut	Local Authority
i6aut	Local Authority
i7aut	National Authority
i8aut	Regional Authority
i9aut	National Authority
i10aut	Regional Authority
i11aut	Regional Authority
i12aut	Local Authority
i13aut	Local Authority
i14aut	Local Authority
i15aut	Local Authority
i16aut	Private organisation
i17aut	Local Authority
i18aut	Local Authority
i19aut	Regional Authority
i20aut	Regional Authority
i21aut	Regional Authority
i22aut	Regional Authority
i23aut	Regional Authority
i24aut	Regional Authority
i25aut	Academic organisation
i26aut	National Authority
i27aut	Academic organisation
i28aut	Academic organisation
i29eng	National Authority
i30eng	National Authority
i31eng	Private organisation
i32eng	Private organisation
i33eng	Academic organisation
i34eng	Academic organisation
i35eng	Local Authority
i36eng	Private organisation
i37eng	National Authority
i38eng	National Authority
i39eng	National Authority
i40eng	Local Authority
i41eng	Local Authority
i42eng	National Authority
i43eng	Local Authoritiy
i44aut	Regional Authority
i45aut	Local Authority
i46aut	Private organisation
i47eng	Private organisation
i48eng	National Authority
i49aut	Local Authority

Appendix 2: EU Floods Directive

The introduction of the EU-Floods Directive opens a new chapter in the flood risk management discussion across Europe, especially in relating to the questions of who and how implement the the requested aspects are implemented. The EU-Floods Directive refers mainly to three implementation steps: (1) preliminary flood risk assessment (Article 4 and 5), (2) developing flood hazard and risk maps (Article 6) and (3) the development of flood risk management plans (Article 7).

Step 1: preliminary flood risk assessment

The preliminary flood risk assessment includes general information about the flood risk problems in a specific area. The report includes a general description of historical flood events and its impact to society. Moreover, the report should include a general description of historical flood events comprising a first assessment of impacts to various vulnerability groups. A main objective is to define all potential risks to society, e.g. to develop on description and map of all potential floods occurred in the past, which had a major impact to society; future flood risk events etc. According to the EU-Floods Directive the preliminary flood risk assessment should include three main attributes: (1) hazard determination, i.e. type of flooding (flash flooding, debris flow, pluvial flooding, or tidal flooding, (2) vulnerability determination, i.e. physical assets, systemic assets (critical infrastructure), environmental assets, cultural heritage assets and human beings, and (3) risk determination. Based on this 'general' information, European Member States have to identify and describe potential areas with 'significant' flood risks.

Step 2: Flood hazard and risk maps

The second step includes the development of flood hazard and risk maps. In the Directive, this needed to be completed by 22 December 2013. The EU-Floods Directive requires more detailed information about potential flood risk events (flood hazard maps) and their potential impacts on society (flood risk maps). This includes a more holistic understanding and in-depth description of flood risk patterns. Article 6 enforces the inclusion of spatial-temporal dynamics into the assessment within different scenarios (low, medium=100 and high probability). The flood hazard and risk maps

are based on the information from Article 4 and 5 (preliminary flood risk assessment), but with more detailed information, e.g. using results from 1D/2D modelling. Here, Member States have to produce two different types of maps, (1) static maps, flood hazard maps with different scenarios for the potentially involved areas and (2) dynamic maps; which are flood risk maps to show potential impacts of a flood event to society and environment.

In the literature, risk appraisal can be divided into two major aspects:

- risk assessment: potential risks to environment, human health, economy, culture heritage, i.e. hazard identification and estimation, exposure and vulnerability assessment and risk estimation;
- concern assessment: assessment of related concerns, perceptions as well as socio-economic impacts, i.e. risk perceptions, social concerns, socio-economic impacts (Renn, 2008).

However, the terms hazard, risk and vulnerability include different definitions and approaches how to assess it based on different views and understandings between scholars, policy makers and other stakeholders. The EU-Floods directive (risk characterisation and evaluation) refers to the aspect of definition of the objective how to deal with flood hazards. There is the need is to develop and define a procedural framework to find and understand potential risks and how to manage them. Here, the Member States have to define key objectives and targets about how to manage aspects of flood hazard to reduce their potential impact and consequences towards society and environment. Key points are to define the risk perceptions of the society, i.e. which events are acceptable, tolerable or intolerable and the risk weighting.

Step 3: Flood risk management plans

Flood risk management plans select final programmes of measures to reduce the flood impact (pre-flood reduction), but also to manage effectively and efficiently flood events as well as the recovery phase, such as psychological and economic assistance, support in recovery management, e.g. rebuilding, cleaning etc. Flood risk management includes three main components: (1) pre-flood

reduction, i.e. structural and non-structural measures, (2) flood event reduction, i.e. emergency management, and (3) post-flood reduction, i.e. recovery management (Smith and Petley, 2009). Smith and Petley (2009) described risk management as a 'process through which risk is evaluated before strategies are introduced to manage and mitigate the threat' (ibid: 65). However, the main objective is to assess all available information – generated in the previous steps – to define the final objectives and programme of measures. In general, possible measures are done to reduce potential sources of hazards and their negative impacts. Since 1990s/2000s, risk management strategies shifted their focus from structural measures/emergency planning to a broader integrated flood risk management approach, e.g. land use planning, warning system, risk communication, coordination between different organisations (Sapountzaki et al., 2011). These changes in risk management strategies had a strong influence by new paradigm/or change in society on governance structure, recognise of transaction costs into policy decision process and independence. Key challenges and barriers include pressure to reduce public spending, the pressure from society (especially 'green' grassroots organisations) to use a more 'eco-friendly' flood defence scheme, frequent flood events and generational shifts in public administration. The selection process of the final risk management options for stakeholders comprises predefined criteria and used instruments, e.g. multi-criteria analysis (MCA), cost-benefit analysis (CBA), cost-effectiveness analysis (CEA) to finalise their decision.

Further central points includes the following articles: Article 9 (3) (stakeholder participation), Article 10 (risk communication), and Article 14 (updates of Articles 4, 6 and 7 – every six years). Each different step has a strong linkage to the others. A key aim is to exchange and evaluate knowledge and information as well as to coordinate differently involved stakeholders (EC, 2007). A third development is the involvement of non-state actors in the policy process that Howitt (1993; 1998) described as an outwards re-scaling process. Furthermore, Howitt (1993; 1998) attributed to this process as a dialectically correlation between different agents, organisations, and institutions (see also the following figure below). Within the implementation of the EU-Floods Directive, the rescaling process includes all three directions between the scale units: (1) upwards: EU wide policy definition;

(2) downwards: local or regional actors are the key actors in the implementation process and (3) outwards: involvement of non-state actors in the policy discussion (see also chapter 7).

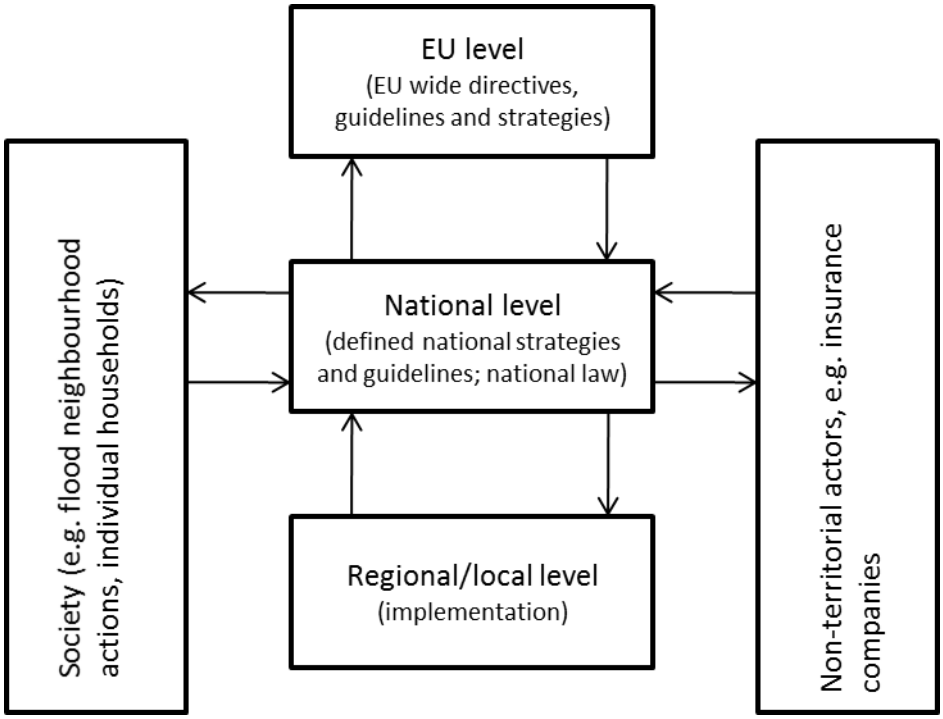

Figure: Dialectical interaction of scales in EU Floods Directive

Source: own development

Appendix 3: Memorandum capital grants

Memorandum relating to capital grants (April 2011)	**Memorandum relating to capital grants (April 2012)**
(2.4) Projects are assessed on the basis of all costs and benefits. The actual grant payable and therefore the approved grant sum is different to the full cost in the business case, and is determined by reference to grant eligible costs.	(2.4) Projects are assessed on the basis of all costs and benefits. ***Prioritisation and approval is determined on this basis. The actual grant payable and therefore the approved grant sum is different and is determined by reference to the tariffs associated with outcomes delivered by the proposal.***
(3.1) The DCLG rules on grant from Government Departments state that the grants provided cannot be ringfenced, but are bid based grants where funding is provided in response to an approved bid. There are a number of capital grant mechanisms operated by the Environment Agency FCERM: - Operating Authority capital FCERM studies, strategies and schemes - Property Level Flood Protection & Resilience schemes (Local Authority Only) - Local Authority Quick Wins (to 31/03/2011) - Early Actions - Coastal Assistance	(3.1) The DCLG rules on grant from Government Departments state that the grants provided cannot be ring-fenced, but are bid based grants. ***Grant will only be provided in response to a bid from the Authority to investigate and remediate a Flood and Coastal Erosion problem in line with the partnership funding rules under the Floods and Water Management Act and the National Flood and Coastal Erosion Risk Management Strategy approved by Parliament in July 2011. The Environment Agency can make grants for all forms of flooding except sewer flooding.***
(3.4) A "study" may be used to create a strategy, a management plan, investigate options for schemes of works, or investigate the environmental impacts of FCERM on an area of statutory environmental designation. Studies concluding that a capital investment is appropriate would take the evaluation of scheme options to include Environmental	(3.4) A "study" may be used to create a strategy, a management plan, investigate options for schemes of works, or investigate the environmental impacts of FCERM on an area of statutory environmental designation. Studies concluding that a capital investment is appropriate would take the evaluation of scheme options to include Environmental Assessment, outline design and outline planning

Assessment, outline design and outline planning approval. (Detailed design of a solution is part of the subsequent Project Appraisal Report process)	approval. (Detailed design of a solution is part of the subsequent Project Appraisal Report process). ***In order to assist risk management authorities with the initial investigation of a problem the Environment Agency has decided to fund 100% of the costs of a study as the study progresses. If a subsequent capital scheme is approved the whole cost including the study will be used to determine the partnership funding grant.***
(3.7) Grants are available to authorities towards approved capital expenditure incurred on the improvement of existing, or the construction of new, flood or erosion risk management and water level management works. Within this definition, grant is available for studies, projects within strategies and stand alone projects. Also, amongst other things grant is available for: • Estuary or beach management projects (recharge, replenishment, re-cycling and monitoring) provided they are part of an agreed long-term beach management programme, • Projects designed to manage water levels so as to achieve environmental benefits as well as for those designed to secure other benefits. Such projects may also facilitate surface irrigation through increased water levels. Priority will be given to such projects in sites of international and national conservation importance. (Note: Grant is not available for projects where the prime objective is	(3.7) Grants are available to authorities towards approved capital expenditure incurred on the improvement of existing, or the construction of new, flood or erosion risk management and water level management works. Within this definition, grant is available for studies, projects within strategies and stand alone projects. Also, amongst other things grant is available for: • Estuary or beach management projects (recharge, replenishment, re-cycling and monitoring) provided they are part of an agreed long-term beach management programme, • Projects designed to manage water levels so as to achieve environmental benefits as well as for those designed to secure other benefits. Such projects may also facilitate surface irrigation through increased water levels. Priority will be given to such projects in sites of international and national conservation importance. (Note: Grant is not available for projects where the prime objective is spray irrigation or water supply). • Purchase of land for habitat compensation to allow schemes to comply with the

spray irrigation or water supply). • Purchase of land for habitat compensation to allow schemes to comply with the Habitats Regulations. • The preparation of Environmental Statements under the Environmental Impact Assessment (Land Drainage Improvement Works) Regulations 1999, when consultants are used to undertake this work.	Habitats Regulations. ***Coast Protection:*** ***(Including CPA) The preparation of Environmental Statements under the With respect to projects that require a marine licence, the Marine Works (Environmental Impact Assessment) Regulations 2007 (the MWR) (as amended by The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011) will also apply. The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 are also relevant for projects that require planning permission.*** ***The preparation of Environmental Statements under the With respect to projects that require a marine licence, the Marine Works (Environmental Impact Assessment) Regulations 2007 (the MWR) (as amended by The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011) will also apply. The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 are also relevant for projects that require planning permission.***
(4.1) When considering a proposal for grant, the Environment Agency will assess the following: has the problem been correctly identified? is there a real problem to be addressed? • Can the problem and proposed solution be funded by a capital grant scheme? • has an acceptable range of options been evaluated?	(4.1) When considering a proposal for grant, the Environment Agency will assess the following: has the problem been correctly identified? is there a real problem to be addressed? • Can the problem and proposed solution be funded by a capital grant scheme? • has an acceptable range of options been evaluated? • have the major technical and environmental issues been addressed sufficiently

• have the major technical and environmental issues been addressed sufficiently
• thoroughly?
• has the preferred option been arrived at in a properly logical fashion?
• is the proposal consistent with government policies?
  o Coastal Habitat Management Plans (CHaMPS)
  o Catchment Flood Management Plans/ Shoreline Management Plan/ Water level Management Plan
  o Beach Management Plan
  o Biodiversity Action Plan
  o Local Flood Risk Strategy
  o Beneficiaries and Contributions policies
And specifically that the proposal is
• eligible within the terms of the Act,
• technically sound and environmentally acceptable in line with FCERM Appraisal Guidance in England)
• economically justified in accordance with FCERM-AG and with the choice of project option based on the FCERM-AG decision rule (see above),
• in line with action plans set out in CFMPs, SMPs and Coastal Habitat Management Plans (CHaMPs), where appropriate.
	• thoroughly?
	• has the preferred option been arrived at in a properly logical fashion?
	• is the proposal consistent with government policies?
	  o ***Water Framework Directive (WFD)***
	  o Coastal Habitat Management Plans (CHaMPS)
	  o Catchment Flood Management Plans/ Shoreline Management Plan/ Water level Management Plan
	  o Beach Management Plan
	  o Biodiversity Action Plan
	  o Local Flood Risk Strategy
	  o Beneficiaries and Contributions policies
	And specifically that the proposal is
	• eligible within the terms of the Act,
	• technically sound and environmentally acceptable in line with FCERM Appraisal Guidance in England)
	• economically justified in accordance with FCERM-AG and with the choice of project option based on the FCERM-AG decision rule (see above),
	• in line with action plans set out in CFMPs, SMPs and Coastal Habitat Management Plans (CHaMPs), where appropriate.
	• on the Sanctioned List of projects and studies agreed to be eligible for grant.
	• ***Robust Commitments for non grant funding (match funding) are in place***.

• on the Sanctioned List of projects and studies agreed to be eligible for grant.	
	(5.1) ***Partnership Funding has shifted the mechanism for determining grant. Under quantum of grant available for a scheme is determined not in relation to costs, but on the basis of the outcomes delivered. All schemes should seek contributions from beneficiaries, but under Partnership Funding the quantum of grant provided will be capped by reference to the outcomes. Partnership Funding guidance can be found at: http://www.environment-agency.gov.uk/research/planning/134732.aspx***
(7.2) Administration costs and day to day running expenses, which an authority must necessarily incur to discharge its functions will not be admitted for grant, e.g. accommodation and related costs, insurance charges, legal and other professional costs. If however additional costs are incurred, say for site offices and compounds they are allowable. In cases where expenditure in respect of such items as holidays with pay, sick pay, national insurance contributions, Public Liability Insurance, small tools and light plant etc cannot be conveniently apportioned to approved schemes, recovery may be made as an on-cost on salaries. In respect of stores handling the expenditure may be recovered by an addition to the cost of stores issued.	(7.2) ***If the Regional Flood and Coastal Committee agrees to make local levy available to match grant the Committee expects that levy granted would be for additional costs incurred by the risk management authority and that the risk management authority would itself bear the cost of general overheads.***
(8.5) A record of condition and plight should	(8.5) A record of condition and plight should be

be taken before any works are started to provide a basis for subsequent determination of the compensation to be paid. The fees of independent specialists employed by an authority to carry out this exercise will be eligible for consideration for grant.	taken before any works are started to provide a basis for subsequent determination of the compensation to be paid. ***(Second part is delete)***
(8.6) The cost of post-condition surveys may be considered for grant, provided they can be justified	***Delete***
(8.7) Only the reasonable fees of the claimants' solicitors, surveyors and other experts (e.g. valuation specialist) payable by an authority in connection with the settlement of approved claims are eligible for consideration for grant.	***Delete***
(9.1) Operating authorities are expected to obtain contributions wherever possible towards the cost of a scheme from those who will derive benefit from it or whose actions or requests have led to the scheme being undertaken.	(9.1) Operating authorities are expected to obtain contributions wherever possible towards the cost of a scheme from those who will derive benefit from it or whose actions or requests have led to the scheme being undertaken. ***Under Partnership Funding the grant payable will be determined on the basis of the outcomes delivered by the scheme.***
(9.3) Where contributions are made by other FCERM authorities or riparian owners towards essential FCERM works (excluding betterment) they are normally classed as "windfalls" towards the scheme and are not deducted before calculating grant (non-deductible contributions). The amount of grant payable is the scheme cost less the contributions received.	***Delete***
(9.5) Deductible contributions should be sought: (i) where part of the works will facilitate new	(9.4) Deductible contributions should be sought: (i) where part of the works will facilitate new development, ***(Development post 1***

development, (ii) in respect of betterment value where a project requires existing structures or property (e.g. roads, bridges) to be replaced, altered or made good, or where advantage is taken by others to improve or alter the original structure or works, (iii) for works in commutation of existing liabilities, or (iv) for works undertaken as a result of subsidence due to coal mining or other extractive operations.	***January 2012 cannot be included in bid for grant)*** (ii) in respect of betterment value where a project requires existing structures or property (e.g. roads, bridges) to be replaced, altered or made good, or where advantage is taken by others to improve or alter the original structure or works, (iii) for works in commutation of existing liabilities, or (iv) for works undertaken as a result of subsidence due to coal mining or other extractive operations.
(10.1) Formal approval represents a commitment to the funding for the study, strategy or works, subject to the terms of this Memorandum. A formal approval letter from the Environment Agency with an approved grant eligible sum is necessary before work can commence (except in emergencies).	(10.1) ***A risk management authority will submit a Project Appraisal Report with recommendations on costs and options, identifying a preferred option. The Environment Agency will assess the report and submit for approval. In order to assist risk management authorities negotiate contributions the Environment Agency will provide a formal technical approval to the proposal. This is not approval and allocation of the funding at that stage, but enables the partnership funding grant estimate to be prepared.***
(10.2) For formal approval, submission of a FCERM7 or FCERM2 plus a project appraisal report (PAR), signed by officers authorised by the Authority; and undertaking to comply with grant conditions should be submitted to the Area FCRM Manager. The attention of consultants employed on a project should be drawn to these conditions regarding approval.	(10.2) ***Once the authority confirms that all match funding requirements are in place the Environment Agency will provide formal financial approval for the grant. Formal financial approval represents a commitment to the grant funding for the study, strategy or works, subject to the terms of this Memorandum. A formal approval letter from the Environment Agency with the approved partnership grant is necessary before work can commence (except in emergencies). The grant offer is a capped sum based on the outcomes provided.***

	(12.1) ***The Partnership Funding grant is based on outcomes and caps the Exchequers contribution. The Environment Agency manages project contingency at a programme level and does not allocate contingency to the individual projects. The allocation made to the risk management authority can be increased up to the value of contingency included in the approved sum. Requests to increase the grant approved should be made using an FCERM4.***
(12.2) Following the changes in DCLG rules the approved sum notified to the Local Authority is the project approval sum less ineligible items and contingency. The Environment Agency manages contingency at a program level and will consider applications for additional financial support within the costs identified at project appraisal. Immediately it appears likely that expenditure in excess of the approved sum may have to be incurred in order to complete a scheme details of the reasons and levels of expected extra costs must be submitted on form FCERM 4 for formal approval. The Environment Agency is keen to ensure all schemes are delivered, will support the risk management authority to secure additional funding and may consider offering additional grant support. Failure to seek prior approval for excess expenditure may result in it not being accepted for supplementary grant.	(12.2) ***Delete first part.*** Immediately it appears likely that expenditure in excess of the approved sum may have to be incurred in order to complete a scheme details of the reasons and levels of expected extra costs must be submitted on form FCERM 4 for formal approval. The Environment Agency is keen to ensure all schemes are delivered, will support the risk management authority to secure additional funding and may consider offering additional grant support. Failure to seek prior approval for excess expenditure may result in it not being accepted for supplementary grant.
	(17.4) ***Partnership Funding is made available on the basis of whole life costs and therefore includes a commuted element for future maintenance. The***

	commuted element should be used by the Authority to provide future years funding for maintenance.
(21.1) IDB rates vary, generally studies and works are grant aided at 45%. Special grant rates are available to IDBs undertaking capital works (and associated studies) to implement agreed water level management plans ineligible items. Lists of rate applicable (a) sites of national importance (50%), (b) internationally important conservation sites (80%) and (c) certain priority sites listed by Natural England – Natural 2000 sites (100%).	(21.1) ***The rate of grant applicable for a scheme depends upon the outcomes delivered. Previous grant rates are replaced by the outcome based payment. There is one restriction, studies and schemes that are proposed outside of a strategic FCERM plan for the area will be capped at a grant rate of 45% of the approved partnership funding outcomes.***
(21.2) For Local Authority schemes only, 100% grant rate will be paid on approved eligible costs for all types of work.	***Delete***
(22.1) Subject to an authority carrying out an approved scheme in a satisfactory manner and observing all the conditions laid down in this memorandum, grant will be paid at the appropriate rate on the actual approved eligible expenditure. Failure to follow grant terms and conditions could result in the Environment Agency withholding grant.	(22.1) ***Grant will be paid at the appropriate rate as the scheme progresses. Failure to follow grant terms and conditions could result in the Environment Agency withholding grant.***
(22.3) Payments will be made to the authority's bankers normally within one month of the submission of the FCERM 3.	(22.3) ***If the Regional Flood and Coastal Committee are providing match funding or have determined to fund 100% of eligible costs of a project the grant will be provided using the same route. The approval letter will specify the proportions of grant. The authority makes a single claim using the FCERM3 form and the Environment Agency will ensure that the correct apportionment of grant is***

	made.
	(22.5) ***Grant may be withheld in respect of any scheme where the start date has not been notified, or if the grant claim profile changes over more than one financial year, without the prior agreement of the Environment Agency.***

Source: EA (2011); (2012b)